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The Journal of the Minnesota State Medical Association
and Official Organ of the
North Dakota and South Dakota State Medical Associations

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APPENDICITIS WITH SYMPTOMS OF DISEASES OF THE URINARY TRACT*

By J. D. WHITESIDE, M. D.

ABERDEEN, S. D.

I chose this subject because of a few cases I have had with symptoms simulating renal colic. It is difficult to see how the pathological condition present could have caused all the symptoms.

Every symptom, of course, must have its exact pathological condition and *vice versa*, and if we interpret accurately all the symptoms we shall always have an exactly corresponding pathological condition. Possibly I did not recognize all the macroscopic pathological conditions present, but I believe there was a pathological condition within the capsule of the kidney not recognizable by sight or palpation and due to external causes. I have been unable to find anything in the literature which throws much light on the subject, so I am reporting these cases, hoping that they may be of interest and benefit to you, and that I may derive some light from their discussion:

CASES

CASE 1.—Mr. A. J., aged 19, student. Family history, negative. Past history, typhoid at 14 of four weeks' duration; good recovery. At the age of 17, while walking home from school, he was taken with a severe pain in the right loin, colicky in nature, radiating from the right kidney region to the glans penis and to the epigastrium. The pain was so severe that patient sat down on the street curbing, was doubled up for about thirty minutes. He then caught a car for home, but was obliged to leave the car because of a desire to urinate. After arriving home he had several attacks of vomiting with frequent and painful urination.

Two days later the patient, with the pain confined to the kidney region, called on a physician who, after a careful examination, including the urine, diagnosed the case nephritis. The urine showed a trace of albumin with some casts. The patient was kept on nephritic treatment for two years. During that time he had several attacks similar to the first, but less severe. His urine was examined frequently, but no albumin was found, although a few casts appeared during and after each attack.

He was skiagraphed for the possibility of renal stone. None showed.

Present trouble: Patient first came to my office on June 22, 1910, complaining of pain in the region of the right kidney. Four days previously he had a sudden attack of sharp, burning pain running from the right loin across the right lower quadrant of the abdomen to the genitals, with nausea and vomiting coming on two or three hours later, accompanied by frequent urination with tenesmus and burning. His bowels had not moved since the attack started.

Physical examination: Temperature, 99°; pulse, 60. Good physique. Heart and lungs, normal. Reflexes, normal. Right kidney, palpable and on deep inspiration slightly tender. A marked degree of rigidity of right rectus muscle with considerable tenderness over the region of the appendix. Urine examination: albumin and sugar, negative. No W. B. C.; no R. B. C.; rarely a narrow hyaline cast. Sp. gr., 1016. Cystoscopic examination of bladder, negative.

A diagnosis of appendicitis was made, but because of the history of the previous attacks all simulating renal colic and the previous diagnosis of nephritis, the patient was put to bed and watched.

The attack gradually subsided, and the patient was out of bed in four or five days, but retained some backache and a slight rigidity of the right rectus. I examined the patient's urine every two weeks and always found it normal. On August 29th the patient had a similar attack and was taken to the hospital and operated on.

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

The appendix was thickened and elongated, and showed signs of infection. It was adherent to a loop of the ileum and to the posterior parietal peritoneum over the ureter. The appendix was removed. It contained two large fecal concretions. Both kidneys were examined and appeared normal.

The patient made an uneventful recovery, has gained markedly in weight, and has been entirely free from all urinary trouble and backache since the operation. He passes an average amount of normal urine in twenty-four hours.

Case 2.—Mrs. N. C., aged 26, married one year. Family history: father and one brother operated on for appendicitis, otherwise negative. Past history: has had a number of attacks with abdominal pain and distress called indigestion. Menstrual history: normal, 28-day type, regular up to January period of 1910, has not flowed since.

The present trouble began five days ago with pain in epigastrium and just to the right of the spine at the lower border of the ribs; the pain became very severe and localized several hours later in the right lower quadrant of the abdomen and vagina. A physician was called and administered an opiate, which relieved the pain. It soon recurred, radiating from the region of the right kidney to the vagina, with urination every few moments accompanied by much tenesmus. The physician who referred the case said her urine was bloody the first three days of the attack. The patient entered the hospital August 7, 1910. Temperature, 100°; and pulse, 110; and was passing urine ten to fifteen times in twenty-four hours. Her urine showed a trace of albumin and ten to fifteen erythrocytes to the field; there were no blood clots; otherwise negative.

Physical examination: Thorax, negative. Abdomen, uterus extended up to umbilicus. She was extremely tender just to the inner side and about two inches above the right iliac spine; pressure over this area caused severe pain, both under the point of pressure and in the region of the bladder, with a desire to urinate.

Operation: incision; muscle-splitting over the appendix. Appendix found adherent to the fundus of the uterus by its distal end and stretched taut. It was swollen and contained pus and one concretion the size of an olive seed. It was removed.

The right kidney was normal in size and consistency. The right ureter at a point opposite the appendix was thickened and hard for about two inches. The frequent desire to urinate was absent immediately following the operation and microscopic blood disappeared from the urine forty-eight hours later. The patient went home in two weeks and had a normal confinement eight weeks later.

I saw the patient recently. Her urine was normal, and she said she was rid of her indigestion and had not had any trouble with her urine since the operation.

Case 3.—Mr. L. S., aged 20, hotel clerk. Family history, negative. Past history: pneumonia at twelve years. Has had a number of attacks of varying duration which were diagnosed acute appendicitis. The present trouble started two weeks ago with epigastric pain, soon localizing in the region of the appendix and ran a typical course of acute appendicitis with resulting rupture and abscess-formation. The patient's brother-in-law was a druggist and had been administering a patent appendicitis cure up to the time the patient left for the hospital.

The patient entered the hospital on New Year's Eve, 1910, and said he had blood in his urine the past ten days, with frequent painful urination. Examination showed urine highly blood-colored; no clots. Temperature, 99°; pulse, 130. Dullness over right flank up to liver and across lower abdomen. The abdomen was opened. The abscess extended upward externally to the ascending colon and across the abdomen to the sigmoid below the meso-ileum and no attempt was made to remove the ruptured appendix, which formed part of the abscess wall. Another abscess walled off to the outside of the mesosigmoid and was drained two weeks later.

The amount of blood in the urine rapidly diminished and was entirely absent one week after the primary operation. The patient went home five weeks after the operation with the understanding that he was to return and have his appendix removed as soon as his physical condition improved.

January 1, 1912, one year and one day after his first operation, the patient returned to the hospital with an appendiceal abscess (an attack of sixty hours' duration), with frequent urination and much blood in his urine, which was otherwise negative. The appendix was removed and the abscess drained. The patient made good recovery. No blood in urine except an occasional red thirty-six hours after operation. The patient left the hospital in three weeks, is at present in good health, and has had no return of the urinary symptoms.

Now, what decision can we arrive at as to the cause and source of the blood in the urine and the pathological condition which would cause these symptoms so closely simulating renal colic?

In Case 3, with the abscesses, where did this blood come from; was it so-called idiopathic hematuria due to congestion of the kidney from surrounding infection? was it from some gross pathological lesion in the ureter or bladder? or was it entirely reflex?

In Case 2, that of the pregnant woman, was the hematuria co-called idiopathic or might it have been due to a varix or papilloma of the bladder and merely coincident with the attack of appendicitis?

Could it have been ureteral in origin? Remember the thickened and hardened area near the appendix. Or did both of these cases have renal stone?

I think we can rule out renal or bladder stone in all three. I cystoscoped both men. One was skiagraphed, and there certainly was not sufficient pathological condition in the bladder to cause the symptoms. It is possible that the hematuria was of bladder origin in the woman, but not probable. Her symptoms and subsequent course tend to disprove that. I think we can safely assume that the bleeding and other symptoms of a renal-colic nature came from higher up in the urinary tract, either the kidney or the ureter.

We can rule out malignant neoplasms of the kidney, for the subsequent course of these patients has disproved that possibility.

Now, what do we mean by *idiopathic hematuria?*

The most common theory is that it originates in a congestion of the kidney, caused by an endeavor to eliminate poisons, but that in most cases the kidney itself must be diseased before it will react in this way.

I wish here to cite a case of hematuria reported by Keyes and called by him idiopathic.

History: Mr. C. I., single, aged 30, has had several attacks of non-specific urethritis. The patient is nervous, and the urine over-acid. August, 1887, a spontaneous attack of left nephralgia and hematuria, lasting eighteen hours. April, 1890, pyemia and hematuria. A little blood in the urine all the time until July 29th. An attack similar to that of August, 1887. The blood is bright red; the bleeding ceases spontaneously; the pain is not very severe. In September a similar attack, on December 18th similar attack. The left kidney is sensitive. In February, 1891, an attack of hematuria lasting five weeks with pain and tenderness in the left kidney.

This continues until March. Nephrotomy, left kidney exposed. It appears normal; no stone felt. Needling discloses several areas of tissue so dense that a distinct creaking sound is produced by the needle as it passes through them.

In 1899 I operated upon him for acute appendicitis, and he has never had any further hematuria.

No stone or gravel has passed at any time nor has there ever been any real attack of renal colic.

In this case of Keyes the nephralgia was left-sided; the ureters were not catheterized, but it is presumed that the blood was from the left kidney. After removal of the appendix in an acute attack the hematuria ceased and did not recur. Was the appendix an etiological factor in the hematuria, either reflexly or as a cause of toxemia through absorption from the intestinal tract, or by direct infection through the lymphatics of the perirenal or periureteral tissues causing a congestion of the kidney tissue or ureter?

In my third case, the boy with the abscesses, the bleeding came on with the first attack of appendicitis, but cleared up following drainage with the cessation of absorption of toxines and relief from lymphatic infection and consequent congestion of surrounding tissues, to reappear with the next attack and again disappear following the removal of the appendix and drainage.

In this case the frequency of urination might have been due to direct contact of the abscess with the bladder. In the other two it must have been reflex through the sympathetic nervous system, branches of which supply both the entire urinary tract and the appendix.

Was the hematuria also reflex or due to congestion in the kidney or ureter from the infection in their immediate vicinity, causing an increased tension within the kidney capsule and an attack of renal colic exactly similar in all its symptoms to the passage of a stone down the ureter?

(For discussion see page 6.)

A REVIEW OF THE LAST 150 CASES OF APPENDICITIS IN SACRED HEART HOSPITAL*

By S. M. Hoff, M. D.

YANKTON, S. D.

During a period of twenty-eight months, ending January 1, 1912, there came under personal observation and operation in Sacred Heart Hospital 151 cases of appendicitis, of which number 76 were acute attacks of the disease, and 75 were of the chronic and recurrent type. Fifty of the total number were in the first attack of the disease, of which 24 were already ruptured or abscessed—perforation having occurred in three instances within twelve hours from the onset of the attack. Four presented appendices that were necrotic and on the verge of rupture within 20 hours, and there were eight in which no rupture was apparent, but in which the infiltration and migration through its wall was sufficient to produce a peri-appendicular abscess, necessitating the usual treatment for abscesses. Twenty-seven were in their second attack, 26 in the third, 11 in the fourth, and 25 had passed through the fifth or more attacks.

Thus we find that about 60 per cent of the cases have had two or more attacks of the disease, and it would appear that this large number is indicative of a condition which should not prevail in this otherwise very well enlightened community. Where an individual passes through repeated attacks of appendicitis some one is responsible and is making a grievous mistake. Should the patient survive, our experience amply proves that he will surely be driven, sooner or later, to operation, and then under conditions that are decidedly unfavorable in direct proportion to the number of attacks.

The rapidly progressing cases, which many perhaps would class as the fulminating type, are referred to here, in order to emphasize the im-

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

portance of early intervention in the removal of the offending organ as soon as the diagnosis is made. Harm can rarely occur in pursuing this course if in competent hands, whereas much misery has occurred, and will occur, if delay is taught and practiced in the treatment of this most treacherous disease.

We have been impressed in this series of cases with the fact that one attack predisposes to another, and almost invariably each succeeding attack increases in severity. Thus it is that each succeeding attack adds to the adhesions, which always means operative difficulties, and increases, both directly and indirectly, the mortality of appendicitis. And yet adhesions do often perform patients a useful function if they as well as their physicians are so prejudiced as to deny themselves the benefits of an early operation.

It has not been found a difficult matter to obtain, by careful questioning, a history of preceding attacks, which were without doubt appendiceal in origin, although some other conditions may have been ascribed to them.

There were two deaths among those operated on during the primary acute attack of the disease with suppuration, and six among these of the chronic type, a total of eight cases, or 5½ per cent. One case, No. 136, with acute general peritonitis, died on the tenth day following the onset of the disease and two hours after operation; and the second case, No. 53, died of acute intestinal angulation nine months following operation. This case, perhaps, might be considered out of place in this report, but to our minds it is essential that it be included since the acute attack of appendicitis, plus rupture and localized peritonitis preceding the obstruction by nine months, can not be denied a contributing factor to her ultimate death. Furthermore, it is our opinion that a more complete "follow-up" history extending over a period of years, would be very desirable and should be more frequent. If this were done, much valuable information of an illuminating character would be disclosed, since obstruction of the bowels, either by adhesions of adjacent coils, or by bands extending from the appendix-area to the neighboring small intestines, is not an unusual sequela to many cases of suppurative appendicitis, and it may be delayed many months following the operation, as the above case demonstrates.

Three cases of the chronic type died as a result of sepsis. Case No. 61 died on the sixth day of the second attack of the disease, and 18 hours after the operation; case No. 119 died on the eighth day of an acute attack following years of abdominal pain and "indigestion," complicated with a double salpingitis, four days following operation; and the third of the recurrent type, No. 123 died on the ninth day of the attack and four days after operation. Of the three remaining, one case, No. 21, died of an acute fatty degeneration of the liver 48 hours after operation, in which chloroform was the anesthetic used. Case No. 25 died of hemorrhagic dysentery on the fifteenth day following operation. Case No. 22 died of septic portal phlebitis and invasion of the liver, six weeks after his operation. A report of this case will be found in THE JOURNAL-LANCET for May 15, 1912.

Fifty-one of the total number were operated upon in the presence of pus and other complications (a complete record is herewith given), to which it will be noted our mortality is confined. One hundred were in the "clean stage," viz.: all cases in which operation of election was done, which numberd 20; those operated on during the acute attack numbering 31, in which the lesion had not yet spread beyond the peritoneal coat of the appendix; and 49 in which the appendix presented marked evidence of infiltration and edema plus concretions 2 per cent and pus, in which the lumen was found strictured. Adhesions of various kinds and density were met in these cases.

Thirteen of the total number were in such condition as to make the removal of the appendix at the primary operation extra hazardous, hence drainage only of the main abscess was considered advisable. Seven of these subsequently demanded the removal of the offending organ. Three are in possession of what still remains of their appendices, but since they have fully recovered and remain well they see no reason for further operative intervention. Three of the deaths occurred in this group, Nos. 53, 123, and 136.

The question of removing the appendix in the presence of pus in all instances has been a subject for considerable discussion. There can be no doubt, however, that it is the part of good judgment not to subject a patient already in a depressed and profound toxemic condition to the trauma, even though it may appear slight, necessary in the removal of the appendix. Hence it has been our practice, unless the appendix is readily accessible and absolute surety that freedom from spread of the infection can be ob-

tained, not to remove it in this phase of the disease. We have been content in getting in and out again as rapidly as possible, draining the abscess only, and leaving the removal of the appendix for a subsequent operation. We firmly believe that lives have been sacrificed by too extensive primary operations in the effort to do "one sitting and complete work," and the patient's only chance wrecked thereby. No doubt the success of the operation, to a great measure, depends upon one's ability to open and drain every pocket of pus; but our experience has not led us to regret having drained the main abscess only, in these extreme cases, and permitting secondary collections, if there be any, to remain for a subsequent operation, and at a time when the patient has reacted and sufficiently recovered to undergo the more complete work. We are confident that lives have been tided over a most critical period and finally saved by these measures in this series of cases. It is the aim to conduct the patient to a cure regardless of the number of operations that may be necessary to accomplish the result. In this series eight required a second operation and two deaths occurred; and four required a third operation and all of them recovered.

In our classification we have confined ourselves in this review somewhat more to the clinical course and manifestations of the disease than to the pathologic findings.

The great majority of the cases would fall under the following types, provided a clear and accurate history could be obtained:

First, the acute type, or those having the acute inflammatory attacks with classical symptoms of a primary seizure.

Second, the recurrent type, or those who had given a history of preceding acute attacks, with complete recovery, but with a recurrence, sooner or later, of the symptoms of a primary seizure.

Third, the chronic type, or those once having had an attack and were not well. some form of the "chronic symptom-producing conditions of the appendix" persisting.

It is in this last-named variety that we so frequently find repeated acute exacerbations, each attack creating and adding to adhesions that become dense and organized, a leathery peritoneum, and an appendix presenting all forms of pathologic conditions. It is in this variety, also, when finally brought to operation, that the surgeon meets with some of the greatest operative difficulties. While none of the types given may appear clean-cut and pronounced in any particular instance, still it has appeared to us, on careful analysis of the history and symptoms, that one or the other of the varieties predominated, always bearing in mind the variation of any particular type. It is on this classification that the record herewith has been based.

The symptoms of pain, nausea, vomiting, local tenderness, rise of temperature, etc., have been somewhat variable in their manifestations. Thus we find six that were nauseated, but did not vomit; three being in the acute attack, Nos. 51, 53 and 94, and three having had several attacks, Nos. 101, 118, and 134 of the chronic and recurrent type. As it is a reflex act resulting from abdominal pain, much import has not been attached to it if considered alone, as we may have many conditions of the abdomen productive of pain.

The latter symptom, pain, however, stands out very prominently and has been the complaint in every instance. It has been a constant symptom, never absent, although patients have varied in their expression of its severity. It is somewhat spasmodic in character at the onset, but early assumes a more or less continuous phase, subsiding gradually and completely if recovery ensues; but in the majority of instances initiating the train of symptoms, characteristic of the chronic and recurrent type of the disease. We have learned to fear the sudden cessation of pain, with a return in a few hours, much increased in intensity and continuous in character. It has meant a rupture of the appendix or a preceding abscess wall into the general peritoneal cavity with a beginning peritonitis. It has been a signal of danger. This occurred in 17 instances, so far as could be determined by the history. The location of the pain has varied within wide limits, and has been found in all quadrants of the abdomen. In a large majority of instances, however, it has been circumscribed and could be intensified in McBurney's point. The direction and position of the appendix itself, have not a little to do with the situation of pain and tenderness, whether referred or otherwise. Thus in Case No. 94 pain of maximum intensity was in the liver region, the appendix was found retrocecal, ruptured, and pointing to the liver. In No. 33, the chief complaint was painful urination, plus tenesmus. The appendix was found over the brim in the pelvis and adherent to the bladder. Case No. 102, with sharp right pelvic pains, radiating to the groin, in which the necrotic tip of the ap-

pendix was found plastered to the right ovary. In many instances in which the appendix was found retrocecal, under the ileum, would the pain be referred to the umbilicus and even to the stomach. Other instances will be noted in the chart.

The condition has seemed of sufficient importance to venture an opinion as to the position and subsequently varefying it at operation. Its position also and the point of rupture through its wall, will determine the situation of the primary collection of pus. In some cases, however, those in which the virulency of the infection was great, the rupture early, or the resistance low, no apparent attempt at localization was manifest. This was found in three instances, Cases 87, 123 and 136, in which the general peritoneal cavity seemed invaded and the outer coat of the intestine blistered. Two deaths occurred.

It may be stated as a truism that the dangers and mortality of the disease increase in direct proportion to the extent of peritoneal tissue involved in the septic process.

Our usual conception of the position of the appendix is that it hangs directly downward and slightly inward from its point of origin at the cecum. In this series, however, it was found retrocecal in 58, and up and in towards the spleen, liver, or kidney in 28, a total of 86 in which it pointed upward and not downward from its point of origin. In 11 it was in the pelvis, in 4 it was curled outward and plastered to the cecum and ascending colon, and 42 were abdominal. The position which it most naturally occupies in health, it is but rational to assume, will be found its position when diseased, although it may become greatly displaced by contracting adhesions to adjacent viscera, especially in the chronic type.

It has been our practice in this series to operate upon every case as it arrived and the diagnosis positively established, regardless of the time of onset of the attack, except in one instance, No. 119, in which the Ochsner treatment was instituted for three days. The earliest period was 12 hours from onset, the latest four weeks, indefinite one, No. 120, with T. B. All phases of the disease and pathologic conditions of the appendix, it would seem, were observed in the cases coming in the intervening period. And since its adoption the principle of conservatism *during the operation*, removing the appendix in every instance in the uncomplicated and early cases, relief of pus tension only, in the severely toxic and those in shock, unless the organ be very readily accessible, with ample drainage, the least possible separation of life-saving adhesions or traumatising of infected tissues plus posture and elimination, has all but erased the period of operative intervention, as measured by time, in our treatment of this disease.

It may become necessary at a later period to modify these statements in the light of a better knowledge of the possibilities of the bacterial vaccines in the future treatment of all infections, but up to date we see no occasion to feel discouraged when critically analyzing and reviewing the mortality-sheet of our record. It is not perfect, it is true, and it can not become so until physicians realize and, through their realization, teach the laity that appendicitis is absolutely a surgical disease and the earlier the intervention the better. We have elsewhere* stated that if these facts were applied and practiced by all concerned there would be no deaths from appendicitis where we are now having them, due primarily to the delay of someone in authority, and it seems, in instances too frequent to be desirable, it is the physician not acting promptly when he is called.

I can not close better than to quote the words of one whom I highly respect and regard as an authority, teacher, and pathologist, Dr. J. B. Murphy: "We should accept the force of numbers and experience to guide us against the culpable, if not criminal, error of delay in this class of surgical cases. It is not necessary that every physician should lose a case to learn the lesson any more than that every doctor should lose a case under chloroform anesthesia before learning to abandon it."

DISCUSSION OF THE TWO PRECEDING PAPERS

Dr. B. A. Bobb (Mitchell): These subjects have been handled very ably in the two papers just read. In regard to ureteral trouble in appendicitis: I think it is better to give the patient the benefit of the doubt and operate right away. When the patient is under the anesthetic if you have renal calculus it will likely pass while in that relaxed condition. The first thing noticed in the diagnosis of acute appendicitis, a thing which Dr. Murphy emphasized, is pain, and if that is continuous we must always consider it a great aid in diagnosis. First is pain, then nausea and vomiting, then elevation of temperature, and then the pain becomes localized. If these are reversed in order, you must make a thorough examination, giving the patient a little more time before the operation is done.

Dr. G. G. Cottam (Sioux Falls): My experience in the last few years has taught me that in the chronic form of appendicitis we must always look for associated pathological conditions in other organs, and we shall almost invariably find them. It is either in the form of chronic cholecystitis, with or without pancre-

*The Journal-Lancet, Vol. xxii, No. 10.

atitis, or associated with duodenal ulcer, or, in women, it is associated with pelvic disease or floating kidney. I do not bother much about floating kidney, but the other conditions require surgical attention and should receive it. I have abandoned McBurney's incision on that account. It is an incision that has been useful in its day, but we have got past it. I use the right rectus incision, which enables me to get at the gall-bladder, the pancreas, the duodenum, the appendix and the pelvis. It enables me to take care of anything that is required. I have not for several years seen a case of chronic appendicitis that did not have some associated pathological condition connected with it.

Not long ago I had a case of appendicitis with typical symptoms. I made a right rectus incision and found I had not only acute appendicitis, but also a tubal pregnancy, the abdominal cavity full of blood, and the gall-bladder full of stones. I could mention a number of instances in which the gall-bladder, the appendix, and the pelvis had to have attention at the same time. In acute cases it is different. You cannot investigate when there is an acute infection going on, and I am quite sure in cases that do not clear properly there is an associated pathological condition that will probably require surgical interference sooner or later.

Dr. R. L. Murdy (Aberdeen): This subject interests me so much I do not feel like passing it without saying a few words about these two interesting papers. At the start, I must thank Dr. Cottam for inspiration. I see two ways only by which appendicitis can affect the urinary organs, and I think it is quite thoroughly demonstrated in Dr. Whiteside's paper: first, the adhesion of the appendix to some part of the urinary tract, and, second, toxemia, the toxins are largely eliminated by the kidneys. This has been my observation in several cases of clinical Bright's disease associated with appendicitis, and my theory is that it is the toxins of appendicitis that cause the trouble in the kidneys, and upon the removal of the appendix the kidney symptoms are relieved.

Coming to the report of Dr. Hohf: I was very much interested in it. It was very clear, and I am happy to say that the doctor takes the position that operation should be done as soon as the case is diagnosed. The average surgeon should not follow the teaching of Dr. Ochsner, for it leads to disaster. I have abandoned it entirely the last three or four years. It may be safe in the hands of Dr. Ochsner or a surgeon of his acumen and skill, but for the average surgeon it is an unsafe rule to follow.

I want to take issue with Dr. Hohf in one instance in his report and that is leaving the appendix in abscess cases. I followed that routine formerly, and I found a lot of my cases had a very protracted convalescence, and some have never gotten well. The convalescence was much protracted by the presence of the appendix, and I found the convalescence was more satisfactory in cases where we removed the appendix. There may be cases where the patient is in a bad condition and the appendix inaccessible, and you can reasonably assume that you have but one abscess and that is easily drained. In such a case it might be better to drain the abscess, then do a secondary operation for removal of the appendix and closing wound. I am satisfied that I have reduced my mortality in appendicitis by making it a routine practice to remove the appendix in every case of abscess or gangrene.

Another matter referred to by Dr. Hohf was the matter of ileus following operation for appendicitis. I had that happen a few times, and I attributed it in every case to poorly placed drainage.

If the drainage-tubes ever come in contact with the small intestines it is going to produce adhesions, and in that case you are likely to have ileus, sooner or later.

There is one thing I would like to lay considerable emphasis on, and that is the matter of doing operations for appendicitis by the sense of touch. I think it is the first requisite of a surgeon to be able to recognize every organ in the abdominal cavity by the sense of touch, and unless a man can do that I do not believe he is competent to do abdominal surgery.

Dr. C. B. Smiley (Mount Vernon): I want to emphasize one point in regard to removing the appendix in abscess cases. Last year at the meeting of the American Medical Association that feature was discussed in the surgical section. The consensus of opinion was that, except in rare instances, the appendix should be removed in all cases. If it is not removed there should be a very good reason for it. Practically the only man opposed to that idea was Dr. Ochsner, whose treatment has been condemned here today, and not only here but in a great many other places. We general practitioners must demand that men who are doing surgical work, practically in all of our cases, must remove the appendix.

Dr. H. H. Sherwood (Humboldt): I would like to say just a word in regard to the Ochsner treatment. I have used this treatment for the last eight years, and it has never failed me, and I am not going to give it up at the present time. I believe in operating at the proper time. I use the Ochsner treatment in the acute cases during the worst stages of the diseases, and I carry the patient through until the temperature becomes nearly normal before operating.

Dr. S. M. Hohf (Essayist): You will observe in my paper there were only fifteen cases in which the appendix was not removed, and they were instances in which, I am sure, to have prolonged the anesthesia for a few moments to effect the removal of the appendix would have swung the balance in the opposite direction; and it is in these cases where serious peritoneal involvment is found that we should be exceedingly careful and act quickly. If conditions were such that physicians and the laity would not make attempts at curing the disease in any other way than surgically, these cases would not be met with so frequently. Here we have thirty-three and a third per cent of the cases with the appendix ruptured, which were abscessed and in a very bad condition because of repeated attacks. It seems to me in this day of enlightenment and facilities for operating, where you can transfer your patient to a hospital in a very short time, it should not be necessary for the patient to be subject to repeated attacks of the disease, because it greatly adds to the operative difficulties.

As stated in the paper, I see no reason for the removal of the appendix in the depressed patient. One can go in there by a stab-wound and insert a drain in one-tenth the time it will take to remove the appendix. Not only that, but you are opening avenues for extension of the infection. If the abscess is simply opened and the patient is relieved, it is an easy matter to go in a second time and remove the appendix without hazard.

(Tables follow on succeeding pages)

Case No.	Age	Sex	Diagnosis	Previous Attacks	Onset Last Attack	Special Symptoms	Operation Results	Pathology	Complications	Time in Hospital	Condition When Discharged	Subsequent Course
3	30	M	Chronic appendicitis	Many. Called "rheumatism of bowels"	48 hours	Diarrhea, cramps, general abd. pain intensified to right tympany	1st op.: drainage only 2d op.: appendix removed 3d op.: acute mechanical ileus: released	1. General peritonitis 2. App. gangrenous; ruptured. Abscess in pelvis and abdomen 3. Intestines covered with plastic lymph; acute angulation	Abd. reopened on 10th day for removal of app. and better drainage; again reopened on 15th day for acute ileus	5 weeks	Fair	Recovery complete
4	15	F	Recurrent appendicitis	One, 1 year ago	48 hours	Usual symptoms of acute appendicitis	Appendix removed and drainage	App. 12 cm. long. Median ⅓, gangrenous; rupture threatened; filled with pus and concretions; lumen strictured at base; migration through wall	None	10 days	Good	Uneventful
7	13	F	Acute appendicitis	One	4 weeks	Sepsis, marked distention and muscle-spasm. Semicomatose. P., 150; T., 96°	1st op.: drainage only 2d op.: appendix removed	Intestines and omentum rolled up above umbilicus; abd. and pelvis filled with greenish-white pus. App., necrotic; distal half sloughed	App. removed 10th day	18 days	Good	Good
11	20	F	Chronic appendicitis	One, 2 months ago	10 days	R. abd. exquisitely tender. Marked rectus spasm	Appendix removed plus drainage	App. retrocecal; gangrenous area, but not ruptured; lumen strictured, filled with pus and concretions	Hematemesis on 2d day following persistent vomiting; spontaneous recovery	2 weeks	Good	Fully
15	19	M	Recurrent appendicitis	One, 1 year ago	4 days	Tympanites; sepsis	1st op.: retrocecal plus pelvic abscess, drained 2d op.: appendix removed; drainage continued 3d op.: angulated gut released	Peritonitis; seropurulent fluid in abd. end pelvis. Abd. ruptured at middle, infiltrated, and edematous. Intestines covered with greyish-white exudate	App. removed on 5th day for relief of symptoms; acute ileus developed on 22d day	4 weeks	Good	Fully
18	35	M	Chronic appendicitis	Many in last 8 years	4 days	Umbilical pain referred to right iliac and to liver. Incomplete urinary retention	1st op.: retrocecal and abd. abscess drained only 2d op.: appendix removed in firm adhesions 4 weeks later	Abscess wall formed of intestines and omentum firmly matted together. App. retrocecal, edematous, necrotic, and ruptured, angulated in firm adhesions	Recurring symptoms 4 weeks following; app. removed	6 weeks	Good	Post-operative ventral hernia
17	10	F	Recurrent appendicitis	Four	48 hours	Acute inflammatory onset	Appendix removed	App. buried under cecum. Gangrenous; apparent circulatory obstruction due to short mesentery	None	12 days	Good	Uneventful
21	8	M	Chronic appendicitis	Six in last 8 months	10 days	Sepsis, distention, sharp abd. pain, persistent vomiting, hepatic tenderness, urinary tenesmus	Appendix removed; adherent to iliac vessels; pelvis drained	Necrotic ruptured app. in pelvis attached to wall of bladder; small pus-pocket opened at base of bladder	Jaundice in 10 hours; progressive acute nephritis; albumin, 3% apprehensive and fearful	48 hours	Death	Death
22	14	M	Chronic appendicitis	Three in 3 months	36 hours	Tympany, abd. distress since last attack three weeks ago. Urinary tenesmus; albumin 1%, fine granular casts	Appendix in pelvis removed; drainage	App. over pelvic brim in mass of adhesions; ruptured and greatly infiltrated	Hepatic tenderness persisting	17 days	Fair	6 week following chills and fever; jaundice; hepatic enlargement; sepsis. Case reported in Journal-Lancet, Vol. XXXII, No. 10
25	48	M	Chronic appendicitis	One, 3 weeks ago	Since first attack	Remitting abd. pain, intensified to right since onset; chills and fever daily; R. rectus spasm	1st op.: drainage only 2d op.: appendix removed; in dense mass adhesions with intestinal coils, on 16th day	Abscess firmly walled by ileum and omentum at base of cecum; adhesions binding app. to intestinal coils; evidence of rupture	Uncontrollable hemorrhagic diarrhea developed on 15th day with tenesmus and exhaustion	20 days	Death	

32	14	F	Recurrent appendicitis	One, 3 weeks ago; recovery	12 hours	Sharp R. abd. pain and tenderness; nausea and vomiting; rectus spasm	Appendix removed; retrocecal abscess drained	Appendix S-shaped; buried retrocecally; necrotic and ruptured	None	14 days	Good	Uneventful
33	24	F	Recurrent appendicitis	One, about 1 year ago	3 days	Severe cystitis; painful defecation; pelvic peritonitis; septic chills and fever; albumin and pyuria	Appendix removed; abscess drained through vagina	Appendix over brim in pelvis; necrotic and ruptured; pelvic organs in simple adhesions bathed in pus	None	21 days	Good	Recovery complete
36	21	M	Acute appendicitis	None	3 days	Typically acute onset	1st op.: appendix removed; abscess drained 2d op.: acute mechanical ileus, released on 2d day 3d op.: ileus recurring on 15th day released	Appendix lying internally and pointing upwards from cecum; distal two inches gangrenous; two large concretions; rupture threatened; migration through wall; seropurulent fluid in cavity	Acute angulation developed on 2d day; repeated on 15th day; metastatic left parotitis	38 days	Good	Recovery complete
38	20	M	Chronic appendicitis	One, 4 weeks ago	72 hours	Chronic bronchial asthma; "bellyache;" nausea; vomiting; distention; peritonitis	1st op.: large retrocecal and abd. abscess drained 2d op.: appendix removed on 6th day 3d op.: acute angulation released on 18th day	Abscess under cecum pointing inward and upward, appendix in dense adhesions pointing upward under ileum, distal half sloughed, plastic white exudate over coils of ileum	On 6th day return of symptoms; acute mechanic ileus developed on 18th day	40 days	Good	Fully recovered
40	19	M	Chronic appendicitis	3, in 3 weeks	Indefinite	Umbilical pain; spasmodic and shifting to R. iliac; diarrhea	Appendix removed	Long angulated appendix with short mesentery imbedded at base of cecum; strictured; filled with pus; not ruptured; ulcerated mucosa	None	18 days	Good	Uneventful
41	17	F	Acute appendicitis	One, 1 week ago	7 days	Acute attack; rupture suspected on 3d day; Ochsner treatment for 3 days	Large circumscribed abdominal abscess; drained only	Appendix firmly imbedded in bottom of cavity pointing under ileum: not removed	Leakage into pelvis; abscess manifest on 12th day; drainage through vagina	25 days	Good	Complete recovery
43	24	F	Acute appendicitis	One, 5 days ago	5 days	R. rectus tense; kidney and liver area very sensitive	Appendix removed; abscess drained under liver border	Cecum curled upward and outward; appendix plastered to outer wall of colon; middle area sloughed and ruptured; large concretion free in abscess-cavity	None	17 days	Good	Full recovery
49	20	M	Chronic appendicitis	Two, in past 2 years	3 days	Abd. distress since attack 4 months ago; abd. wall infiltrated; tumor palpable; attacks increasing in severity	Appendix retrocecal removed; abscess drained	Abdominal wall infiltrated; peritoneum leathery; appendix 10 cm. long, edematous and congested beneath cecum; ruptured; cecum infiltrated and friable	None	15 days	Good	Recovery
51	28	M	Acute appendicitis	None	14 days	R. tumor mass exceedingly tender; rectus board-like; nauseated, but never vomited; Ochsner treatment for 4 days	Appendix removed in tumor-mass plus drainage	Firm adhesions of omentum to cecum and appendix; amputated with difficulty; ruptured at center; cecal wall edematous and friable	None	23 days	Good	Complete recovery
52	22	F	Recurrent appendicitis	Two, in past year; last attack 3 weeks ago	Indefinite	Not well since last attack; indigestion; abd. cramps at irregular intervals; R. iliac region sensitive	Appendix removed	Bloody serum in appendix region; organ edematous; rupture threatened in necrotic area at center	None	14 days	Good	Recovery
53	44	F	Acute appendicitis	None	8 days	Sharp abd. pains localizing on 3d day; rupture suspected; Ochsner treatment; tympanites; myocarditis; T., 102°; P., 145; no vomiting; patient very corpulent	1st op.: under local anesthesia, abscess drained of feces and pus 2d op.: 9 months later and 72 hours following angulation of gut; released	Large abscess to inner side at base of cecum; no attempt made to remove appendix	Fecal discharge continued for 3 weeks; spontaneous recovery	9 weeks	Fair	9 months afterwards, acute ileus developed; 72 hours later abd. opened in home; death

Case No.	Age	Sex	Diagnosis	Previous Attacks	Onset Last Attack	Special Symptoms	Operation Results	Pathology	Complications	Time in Hospital	Condition When Discharged	Subsequent Course
56	23	M	Recurrent appendicitis	Two, in 2 years	36 hours	R. abd. tender; spasmodic pain extending to liver; nausea, but did not vomit; bowels very costive	Appendix removed	Appendix 15 cm. long; buried under cecum and colon, pointing to kidney pouch; base amputated; organ dissected from dense adhesions; torn at point of rupture and necrotic abscess opened surrounding apex	None	15 days	Good	Uneventful
57	12	F	Acute appendicitis	None	10 days	Attack in school; rupture suspected on 4th day; Ochsner treatment; tumor mass exceedingly sensitive; T., 103°; P., 130	Abscess drained beneath abd. wall	Abdominal wall infiltrated over mass; abscess under parietes; 600 c.c. grumous stinking pus; appendix not removed	None	20 days	Good	Well
59	11	F	Acute appendicitis	None	5 days	Sudden severe pain in R. side during sleep; referred to liver; rectus board-like; R. thigh flexed on abd.; persistent vomiting; T., 103°; P., 140.	1st op.: appendix removed; abscess drained 2d op.: subphrenic abscess drained on 7th day	Appendix "exploded;" ragged and greatly infiltrated; lying between leaves of mesocolon; abscess contained 15 c.c. pus	On 4th day liver tenderness increased with enlargement and jaundice; respiratory pain; sepsis; subphrenic abscess drained on 7th day	30 days	Good	Uneventful last report
60	29	M	Acute appendicitis	None	40 hours	Sharp, continuous R. abd. pain; distention; rectus board-like; chills	Appendix removed plus drainage	Appendix acutely angulated; apparent circulatory obstruction; gangrenous and infiltrated; migration through wall	Dark bloody discharge for several days	35 days	Fair	In 6th week symptoms of ileus developed, subsiding in 10 hours
61	25	M	Chronic appendicitis	One, 8 months ago	5 days	Never entirely well since last attack; sharp abd. pain and purging; vomiting; distention; sepsis; hiccough on 3d day; acute ileus	Intestinal drainage; appendix in pelvis removed; drainage	Coil of ileum adjacent to appendix acutely angulated and gangrenous area; appendix gangrenous; ruptured in pelvis; filled with pus	Shock and sepsis; P., 160°; T., 96°; Resp., 40	18 hours	Death	
65	6	M	Chronic appendicitis	Two, 4 months ago	5 days	Indigestion; diminished appetite since 1st attack; fell 4 weeks ago soon followed by abd. tenderness and cramps; partial recovery; 5 days ago acute pains recurred; referred to R.; vomited; R. rectus tense; R. leg flexed; lies on R. side	Appendix removed, retrocecal abscess drained	Abscess subperitoneal in psoas muscle; 30 cc. pus; appendix firmly plastered over muscle; gangrenous and ruptured about center	None	14 days	Good	Full recovery
70	9	M	Acute appendicitis	None	3 days	Acute symptoms followed by tumor mass in R. iliac region	Appendix removed; leakage into pelvis; drained	Appendix gangrenous; center ruptured; much edema; seropurulent fluid in pelvis; abdominal wall infiltrated	None	16 days	Good	Recovery
71	10	F	Recurrent appendicitis	Repeated attacks of "stomach-ache"	36 hours	Sharp intermittent colic and vomiting; exquisite pain, increasing	Appendix retrocecal; removed; abscess drained	Appendix sharply angulated, due to short mesentery under cecum; necrotic wall ruptured; large fecal concretion in cavity	None	18 days	Good	Uneventful
74	9	M	Acute appendicitis	None	48 hours	Complains of continuous abd. pain; increasing and intensified to right; nauseated; no vomiting	Appendix removed under abdominal wall; abscess drained	Appendix clubbed; apex necrotic; ruptured 1.5 cm. from apex; pus-cavity well walled by omentum under abd. parietes	None	17 days	Good	Uneventful

77	6	M	Acute appendicitis	None	3 days	"Belly-ache"; abdomen very sensitive; tumor-mass R. iliac fossa	Appendix removed; abscess drained	Appendix enveloped by omentum; also enclosing abscess about cecum; appendix necrotic close to base; ruptured; cecum deeply congested and friable	Fecal fistula developed on 5th day; closed spontaneously	20 days	Good	Fully recovered
84	26	F	Acute appendicitis	None	10 days	Typical onset; 6 days later chill and fever; tumor-mass in iliac fossa; very tender	1st op.: large abscess drained only 2d op.: 4 weeks later appendix removed	Appendix firmly imbedded in wall of abscess cavity; internal to cecum; not removed; two large fecal concretions in cavity	None	28 days	Good	Recovery
86	20	M	Acute appendicitis	None	3 days	Typical onset of acute attack followed by tumor-formation in R. iliac reg.; incessant vomiting; urinary retention	Appendix removed; abscess drained	Appendix acutely angulated; retrocecal ruptured 2 cm. distal through sloughing area; seropurulent fluid in cavity; adhesions simple	None	18 days	Good	Uneventful
87	15	M	Acute appendicitis	None	4 days	Rapid onset; severe and continuous "belly-ache;" tympany; R. muscle spasm; acutely sensitive	Appendix removed; general peritoneal cavity, drained in patient's house	No apparent attempt at walling, general cavity filled with bloody serum; appendix red and angry, ruptured in center of sloughing area	None	6 weeks	Good	Uneventful
89	30	M	Recurrent appendicitis	Many, in 4 years	3 days	Attacks of abd. pain frequent with complete recovery; acute attack; increasing R. side pains; bowels exceedingly costive	Appendix removed	Appendix infiltrated; mucosa ulcerated and injected; base strictured; lumen filled with purulent fluid	None	10 days	Good	Recovery
92	1½	M	Acute appendicitis	None	5 days	R leg flexed; muscle spasm; abd. sensitive; restless; beginning tympany; no vomiting	Appendix removed under abd. wall; abscess drained	Appendix adherent to coils of ileum, immediately under abdominal wall; greatly thickened and edematous; migration through wall: simple adhesions; abscess	None	14 days	Good	Uneventful
94	41	M	Acute appendicitis	None	3 weeks	Cramp-like pains at beginning; slightly subsiding; nauseated; no vomiting; week later cramps increased; chills; pains referred to liver; bowels costive	Appendix removed retrocecal; abscess drained in kidney pouch	Appendix under cecum pointing to liver; large abscess between leaves of mesentery ruptured near apex where abscess was located; old rheumatic endocarditis plus joint involvement	Colicky pains developed 10 days later; moderate distention	30 days	Fair	Acute rheumatic attack 4 months following, with recurrence of abd. cramps; has made partial recovery
100	31	M	Acute appendicitis	None	1 week	Taken in field; continued at work; abd. soreness persisted; on 3d day sharp iliac pains developed; nausea and vomiting; R. muscle spasm	Appendix removed over pelvic brim; abscess drained in pelvis	Extensive omental adhesions about appendix; organ angry and edematous; perforated in sloughing area near base; pelvis filled with pus	None	23 days	Good	Uneventful
101	19	M	Chronic appendicitis	Several attacks abd. cramps in past year	1 week	Acute attack; localizing abd. cramps; muscle spasm; nausea, but never vomited	Appendix removed	Appendix 10 cm. long; curled upon self by short mesentery; much infiltrated; necrotic area; threatened rupture; strictured at angle; lumen filled with purulent fluid	None	14 days	Good	Recovery
102	19	F	Acute appendicitis	None	3 weeks	"Stomach-ache" 3 weeks ago localizing in R. pelvis, menstruated one week later, irregular sharp pains 3 days ago in R. pelvis and groin; chilly sensations; R. rectus spasm; vomited	Appendix removed from pelvis; pelvis abscess drained	Appendix 12 cm. long, extending in pelvis; tip attached to R. ovary; necrotic and ruptured near ovarian attachment; small abscess in vicinity	None	16 days	Good	Uneventful so far as known

Case No.	Age	Sex	Diagnosis	Previous Attacks	Onset Last Attack	Special Symptoms	Operation Results	Pathology	Complications	Time in Hospital	Condition When Discharged	Subsequent Course
118	10	M	Recurrent appendicitis	Many in 3 years	3 days	Intensified recurring attacks; never vomited; R. abd. very sensitive; tumor-mass developing; T., 103°; P., 110	Appendix removed; surrounded by omentum enclosing 120 cc.; abscess, drained	Appendix thoroughly surrounded by omentum; removed in dense adhesions; edematous and infiltrated; strictured; filled with pus and feces: migration through wall	None	18 days	Good	Recovery
119	24	F	Chronic appendicitis	Indefinite "indigestion"	4 days	Pus tubes; pelvic cellulitis plus peritonitis; uterus fixed and tender; cul-de-sac filled; sharp R. iliac pain; recti spasm; distention; urinary tenesmus. sepsis; Oschner treatment 3 days	Appendix retrocecal; removed; pelvis drained through vagina; iliac fossa drained	Pelvic cellutitis; double pyosalpinx: appendix in dense adhesions; retrocecal; gangrenous area; threatened rupture; large concretion in lumen; migration through wall; pelvis filled with pus: drainage through vagina	Sepsis increasing; partial anuria; uremic coma	4 days	Death	
120	24	F	Chronic appendicitis; tubercular peritonitis	Abd. distress for 18 months past	Indefinite for several weeks	Lower abd. distended and sensitive; pain intensified to R. groin; painful stools; loss of weight; irregular temp.; cachexia: tubercular arthritis in left knee	Appendix removed in adhesions; complete hysterectomy; drainage through vagina	Appendix greatly infiltrated; studded with T. B. nodules; lumen strictured; large concretion; mucosa ulcerated; both tubes and ovaries in adhesions covered with nodules plus entire uterine surface; tubes sacculated; left tube and ovary adherent to sigmoid; pus in pelvis	None	8 weeks	Fair	Has improved under tuberculin treatment
123	13	F	Recurrent appendicitis	Several in last 3 years; Never in bed; complete recovery	4 days	Acute onset on 3d day; sharp intense R. inguinal pain with sudden relief in shock: abd. distending; diarrhea; vomiting; T., 103°; P., 150, thready and running	Drainage only through abd. and vagina	General peritonitis; no effort to circumscribe apparent; abdomen filled with seropurulent fluid; peritoneum injected and blistered	Did well for 4 days, when reinvasion set in and edema of extremities; profound intoxication	In patient's house 7 days	Death	
125	26	M	Acute appendicitis	None	30 hours	Walked to doctor's office with "bellyache;" pain increasing and sharp in 12 hours; localized to R.; fever and vomiting; bowels very costive	Appendix removed under abd. wall	Appendix surrounded by omentum adherent to abdominal wall; much infiltrated and edematous; necrotic area ready to rupture; base strictured; lumen filled with pus and concretions	None	7 days	Good	Recovery
134	31	M	Recurrent appendicitis	Six in 2 years	2 weeks	Pain in R. groin and to back over kidney area; rectus and lumbar muscle in spasm; large tumor-mass below liver; very sensitive; never vomited; urinary tenesmus; albumin and pyurea	Large abscess drained through loin; appendix not removed	1,000 cc. pus evacuated; appendix not disturbed; in very dense mass of adhesions; plastered under colon	None	18 days	Good	Well so far as known

136	41	M	Acute appendicitis	None	10 days	Acute onset plus vomiting; diarrhea; cramps partly subsiding and localizing to R. iliac; abd. scaphoid; T., 99-103°; P., 100; chills on 8th day; increase of abd. pain radiating from R. kidney to glans penis; T., 104°; P., 148; abd. now distending; pains generalized and acute; hiccough	Drainage only	Abdominal cavity filled with seropurulent fluid; intestines and peritoneum blistered; no attempt to circumscribe; appendix firmly plastered to iliac vessels over brim into pelvis; necrotic and ruptured	Shock and collapse	2 hours	Death	
137	13	M	Recurrent appendicitis	One, 1 year ago, sick 2 days	10 days	"Stomach-ache" at irregular intervals for first 4 days; vomited; diarrhea; pains somewhat increasing and referred to R. groin; apparently not very ill; T., 99.5°; P., 80.	Appendix removed with difficulty from kidney pouch; gall-bladder released from adhesions, abscess drained	Appendix and caput curled upward under ascending colon to outer side; apex attached to liver border; imbedded and surrounded by small abscess; not ruptured; migration through wall; gall-bladder adherent to transverse colon	None	17 days	Good	Uneventful
140	41	M	Chronic appendicitis	One, 8 weeks ago; partial recovery	12 hours	Diffuse abd. colic and nausea; vomiting; chilly sensations; pains referred later to R. kidney and shoulder	Appendix 14 cm. long; retrocecal; removed	Appendix edematous and deeply infiltrated; in adhesions beneath colon pointing to kidney; mucosa necrotic; proximal end strictured; lumen filled with pus and fecal matter	None	12 days	Good	Recovery
141	18	M	Acute appendicitis	None	56 hours	Abd. cramps set in which continued for 4 to 5 hours and disappeared; pains recurred in 48 hours; sharp and acute; referred to right iliac; nausea and vomiting; R. rectus spasm and very tender	App. removed at base of cecum; drainage	Appendix engorged and edematous; apex necrotic and ruptured; mesentery short and infiltrated, producing acute angulation	None	14 days	Good	Recovery
142	9	F	Acute appendicitis	None	1 week	Generalized abd. pain; intensified to right groin; distention; diarrhea; septicemia; parents refused early operative relief	1st op.: appendix removed; large abscess drained 2d op.: pelvis drained	Appendix infiltrated and angry; surrounded by omentum and intestines to inner side of cecum; ruptured at center	Leakage into pelvis occurred requiring more complete drainage; abd. reopened, and pelvis drained on 9th day	34 days	Good	Complete recovery

THE DIAGNOSIS OF KIDNEY TUBERCULOSIS*

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The diagnosis of surgical lesions of the kidney, ureter, prostate, and bladder, is being placed on a firm, sound footing. The data obtainable by the most modern methods of examination are definite, exact, and reliable. The deductions are likewise free from guess-work and theorizing. Exploratory nephrotomy must become an unusual procedure.

In the past the diagnosis of kidney tuberculosis has usually been made at such an advanced stage of the disease that irreparable destruction of the bladder and wide extension have already taken place. The condition must be diagnosed while unilateral and surgical, when the kidney can be removed with good promise of effecting a permanent cure. Bilateral kidney tuberculosis is usually medical, and, unfortunately, the medical treatment of the condition, general or specific, with tuberculin, has not proven successful. The exceptions, however, make the condition not always hopeless.

Plate 1. Tuberculous left kidney with abscess formation. Case abstract: University Hospital, No. 1410. Patient, male, farmer, aged 37. Frequent urination of two months' duration; pain at end of micturition, and urine bloody several times. Pain in groin and region of left sacro-iliac joint of one year's standing. No impairment of general health or loss of weight. Temperature, normal. Cystoscopic examination: Tuberculous cystitis; ulcer size of hazelnut to right of left ureteral orifice. Tubercle bacilli and pus-laden urine from left kidney, and normal urine from right by ureteral catheterization. Indigo-carmine test showed, in addition to great impairment of left kidney, compensatory increased function of the right kidney. Cryoscopic test, 0.065 C.

Since the diagnosis of unilateral tuberculosis of the kidney carries with it the indication for the removal of the organ, it is just as important to absolutely ascertain the presence of a second kidney and its functional capability as to recognize the pathological condition.

The great majority of cases of tuberculous kidney are primarily unilateral. Early bilateral infection does occur. The rule is the same as with tuberculous hip, bilateral cases being the exception.

Unilateral infection is classified as being primary, the kidney lesion in the great majority of cases being the first in its system. The ureter and bladder become secondarily and descendingly involved. The infection is usually hematogenous in origin, coming from some small obscure tuberculous lesion, as a cervical, bronchial, or mesenteric lymph-node, the tonsil, lung, or even an anatomical tubercle. A hematogenous origin and a secondary and descending infection of the ureter and bladder is the rule. The second kidney may become involved ascendingly from the bladder through its ureter, or by embolism.

Plate 2. Tuberculous left kidney. Case of intractable cystitis of one year's standing.

Pathology—The growing tubercles form nodules, which in time tend to coalesce. Following caseous degeneration cavities are formed lined with tuberculous granulation-tissue and containing cheesy material or pus. The mass may rupture into the kidney pelvis, or, exceptionally, perforate the capsule with the formation of perirenal abscesses. The ureter and bladder in turn become secondarily infected from the kidney. A secondary mixed pyogenic infection may occur, resulting in a tuberculous

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pyonephrosis, with a running out of the tubercle organisms so that the original tuberculous nature of the kidney can be learned only by careful microscopic study of the organ. The ureter becomes infiltrated, ulcerated, rigid, and thickened often to the size of the thumb. Stricture-formation is common, and at times results in a complete closure of the lumen of the ureter with dilatation above. The condition is called autonephrectomy, since the tuberculosis is sealed, localized within the ureter and the kidney, and shut off from further extension. It is a wonderful effort on the part of Nature, but, however, rarely suffices unless she succeeds in discharging or evacuating the contents through the

Plate 3. Hypernephroma of kidney. Case of periodic hematuria of six months' standing. Diagnosed before operation as "malignant kidney, probably hypernephroma." The diagnosis was based upon cystoscopic findings of absolutely normal bladder, normal ureteral orifices, and spurting of bright-red blood at each ureteral contraction.

loin, after which a persistent sinus remains. The writer has seen and studied three such cases.

The pathology of the bladder will be taken up under its cystoscopic inspection.

In the early stages of the disease the general health of the patient is usually not greatly impaired. It is surprising at times to see a robust constitution and no loss of weight in the presence of a suppurating kidney. Complaint is commonly made of a slight weakness and general lassitude. Progressive loss of weight in the advanced cases obtains as in other tuberculous affections. Temperature has usually been absent in the experience of the writer so long as the tuberculosis is limited to the kidney, even when quite advanced, with cavity-formation. Late cases run the typical temperature of tuberculosis. Anemia of a moderate grade sets in fairly early in the disease and becomes marked.

Physical Examination.—Palpation may be absolutely negative in the early cases, or slight tenderness, increased resistance, and muscle-spasm may be elicited over the affected organ and along the course of the ureter. When the kidneys are palpable the larger of the two may be absolutely sound or the less involved organ, which has taken on compensatory hypertrophy. Nephrectomies and nephrotomies have been performed upon such kidneys in the absence of cystoscopic examination and ureteral catheterism. Tenderness, pain, increased rigidity, and muscle-spasm may be present along the course of the ureter.

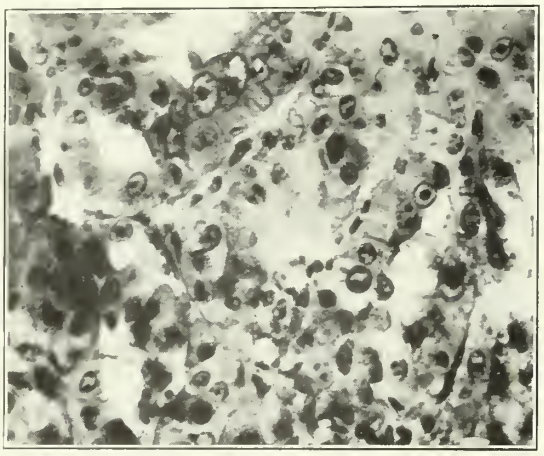

Plate 4. Microphotograph of kidney shown in Plate 3. (Zeiss Obj. 4 mm.)

The rectal or vaginal examination of the base of the bladder and ureters is most important. A thickened, indurated, enlarged ureter is characteristic and can readily be made out by the examining finger. The physical examination should always include the search for a possible original source of infection. Evidences of former healed tuberculosis, as the scars of suppurative adenitis, or a retracted lung apex or stiff joint are suggestive.

Subjective renal symptoms are quite commonly absent, and when present are frequently so completely overwhelmed by the vesical symptoms as to have escaped the patient's notice, or are so slight as to be considered unimportant. Vague symptoms of uneasiness, pressure, fullness, or dull heavy aching in the region of the kidney or loin and along Poupart's ligament,

may be complained of, or, more often, may be brought out by leading questions. Exceptional cases experience moderate or quite severe pain in the kidney and along the ureter during micturition.

Pain in unilateral tuberculosis, when present in the region of the kidney or flank, may be sympathetic, that is, may be referred to the side of the normal non-involved organ. Nephrectomies and nephrotomies have been performed upon such normal kidneys in the absence of cystoscopic examination and ureteral catheterization, the autopsy showing the kidney on the side free from symptoms to be the pathologic and greatly disorganized organ.

Symptoms.—The symptoms of cystitis and a polyuria most commonly and frequently cause these patients to seek medical attention. The frequency of the urination may be slight, from twice the normal of a slightly irritable bladder to the almost constant desire and continuous dribbling of a few drops, the complete incontinence of the advanced ulcerated, contracted bladder. Tenesmus and hemorrhage at the end of micturition are common. Precipitancy of the urination is characteristic and obtains in the earliest stages of the kidney infection when the cystoscope reveals only the mildest congestion of a vesical catarrh. The patient must empty the bladder at once—immediately.

Every case of intractable cystitis which does not respond to the usual treatment, should arouse the suspicion of a tuberculous kidney origin, even though there be no other symptoms pointing in the direction of the kidney. This obtains particularly when the causation of the cystitis is not quite clear. Even when of known Neisserian origin, it is to be remembered that gonorrhea predisposes to subsequent tuberculous infection. The very behavior of a tuberculous cystitis to treatment, as irrigation with silver nitrate, $1/1000$ solution biweekly, is significant at times. The ordinary cystitis will be immediately improved in three or four washings and the tuberculous not at all or is aggravated. Do not attribute too much cystitis, particularly the cases of catarrhal cystitis or simple cases of cloudy urine, to cystocele, malpositions of the uterus, and affections of the adnexa. Every case of intractable pyuria and cystitis should be considered guilty of tuberculous kidney origin until proven innocent by every effort of modern diagnosis.

The urine.—Pyuria is constant except in the infrequent case of complete closure of the lumen of the ureter by stricture-formation, when the urine may be absolutely normal. The pyuria is microscopic in early involvement, and macroscopic, often intermittently so, in the more advanced cases. The urine is light-colored and watery, and contains albumin in small or large quantities according to the degree of accompanying nephritis and the quantity of blood and pus present. Blood, microscopic, is practically present at one time or another in all cases. An occasional blood-cell in the urine, especially in children, should make one consider tuberculosis of the kidney.

Hematuria is very characteristic. The first warning of a tuberculous kidney may be an abundant hematuria lasting one or two days and perhaps recurring in a few weeks or months. The urine may be just stained or the hemorrhage seemingly alarming. The hematuria may be painless or may be associated with attacks of characteristic renal or ureteral colic, due to the passage of blood-clots, débris or necrotic shreds through the ureter, leading to the clinical diagnosis of renal or ureteral calculus.

The finding of the tubercle bacillus is the positive and conclusive diagnostic evidence. More frequent staining and repeated examination for the bacillus should be made. Absolutely clear urine may contain tubercle bacilli. The examination of the centrifuged sediment must be persistently repeated, if necessary, in suspicious cases. The tuberculous focus may be in communication with the urinary passage on one day and not on another. After making nine negative examinations for tubercle bacilli in one case, the writer was finally rewarded with their finding. Differentiation from the smegma bacillus is obtained by proper precautions in the collection of the specimen and by proper staining methods. The obtaining of urine by the ureteral catheter completely eliminates the presence of the smegma bacillus. In doubtful cases guinea-pigs are inoculated, each with the sediment obtained from the single kidney by ureteral catheterization. Such inoculated pigs in the presence of tuberculosis develop the characteristic lesions, which may be recognized by the microscopic examination of lymph-nodes removed during the life of the animal and of tissue obtained at the final autopsy. The procedure is not a difficult one.

In a suspicious case it is not sufficient to prove a urine free from tubercle bacilli or pus, but the

patency of the ureter must be demonstrated either by ureteral catheterization or chromo-ureteroscopy. A tuberculous kidney may be present behind, above a stricture of the ureter, completely shut off from the bladder.

Cystoscopy.—The triumph in the diagnosis of lesions of the genito-urinary system has been the development of the cystoscope, the technic of cystoscopy, ureteral catheterization, and allied procedures, as collargol-shadow skiagraphy and the various tests. By means of cystoscopy and ureteral catheterism not alone do we make an exact, definite, and early diagnosis, but the presence and functional capability of the second kidney are ascertained, thus obtaining data from which proper treatment may be determined. The important question in cases for nephrectomy is, Will the vital excretory function be carried on after the removal of the kidney?

The cystoscopic picture of the bladder is usually characteristic, and in the great majority of cases is sufficient for making a diagnosis. It varies from a mild congestion to the extensive, deeply ulcerated, contracted bladder. The bladder in very early cases may appear absolutely normal, with marked symptoms of cystitis present, and urine laden with tubercle bacilli may be obtained by ureteral catheterization. Ureteral catheterism is absolutely necessary for the early diagnosis in such cases. The difference between urines from a tuberculous and a normal kidney obtained by synchronous catheterization, is macroscopically striking, the tuberculous specimen being light and watery in contradiction to the familiar appearance from the normal organ.

Meatoscopy.—The appearance of the ureteral orifices and the proximal mucosa is the most characteristic and diagnostic feature in the examination, certain conditions being absolutely pathognomonic. A single ulcer at the site of or just below the ureteral mouth, or a funnel-shaped os with a red crater-like bottom surrounded with a ragged undermined, irregular, scalloped margin, is absolutely diagnostic. The opening may be retracted farther out by the involved ureter. In early cases the orifice may appear only slightly swollen, puffy, or congested, surrounded by an injected mucosa, or the region of the trigone studded with small circumscribed intensely congested spots.

Chromo-ureteroscopy.—The intragluteal injection of 0.08 indigocarmine normally begins to be synchronously excreted in from eight to ten minutes. The urine is slightly colored at first, becoming dark-blue in a couple of minutes, and of the same intensity from both kidneys. It is a most valuable and simple functional test. Impairment of renal function is exhibited by the tardy or non-excretion of the indigocarmine and by lack of concentration. The ureteral orifices are observed through a simple examining cystoscope. In characteristic unilateral cases the concentrated blue rhythmic ejaculations of urine appear normally from the sound kidney in marked contrast to the tardy fifteen or twenty minute appearance of weak, light-blue urine from the disordered organ, or the absolute non-excretion of the dye. This weak, light-blue urine may be seen to be mixed with pus, and instead of being spurted into the bladder, as normally, may flow or ooze forth continuously, due to the loss of the rhythmic peristaltic contractibility of the tuberculous ureter.

Phloridzin test.—One centigram of phloridzin injected into the gluteals begins to be excreted by the normal kidneys synchronously and quantitively in the same amount in from fifteen to twenty minutes. It is excreted as a glucocide, which responds to the usual sugar tests. The urine from each kidney separately as it flows from the catheters within the ureters, is tested from time to time for sugar. Quantitative examination may be made of the separately collected specimens. Impairment of the kidney is manifested by the tardy appearance, smaller quantity, or absence of the glucocide. This artificial glycosuria test is a valuable one, but need be applied only in the exceptional case, the indigocarmine test having superseded it.

Cryoscopy.—The boiling or freezing point of a liquid depends upon its molecular concentration. The freezing point of the blood of healthy normal individuals is quite constant, 0.56° C. being the average. Its normal variation is not more than 0.01°. Cases in which the kidneys, due to pathologic change, are not properly removing the decomposition-products from the blood, have a lower freezing point than normal. Anemia and cachexia raise the freezing point, and various other disturbing elements must be given due consideration.

Kummel, with a very large experience, places enthusiastic reliance in the test and considers that a nephrectomy or nephrotomy is contraindicated in the presence of a freezing point of 0.06° C. or lower. The writer's experience with cryoscopy has been recent and limited; however, in two of his cases during the past winter

nephrectomies were performed without mishap, one for a hypernephroma and the other for unilateral tuberculosis with cavity-formation in the presence of freezing points below 0.06° C. He considers the procedure of value, however, in rounding up and completing the examination.

Skiagraphy.—An old tuberculous lesion due to its partial calcification from lime-salt deposit may cast a shadow which is usually readily differentiated from that of a calculus by the cystoscopic examination.

CONCLUSIONS

Kidney tuberculosis is not a rare condition.

Cases of cystitis must be given more study and a broader significance.

The folly of treating a tuberculous cystitis, due practically always to tuberculosis of the kidney, is self-evident.

The curability of kidney tuberculosis is dependent upon its early recognition.

More frequent staining and examination for the tubercle bacillus must be made with greater and earlier recourse to cystoscopic examination and the allied procedures.

DISCUSSION

Dr. S. Marx White (Minneapolis): There is one point in Dr. Strachauer's paper which ought to be emphasized, and I presume it is one with which most of us are familiar, yet I know it is one with which some are not familiar; and it is this: It is not necessary that pus be in the urine for tubercle bacilli to be present there; that is, a urine which is apparently free from any pus whatever will sometimes contain tubercle bacilli. I have had that experience twice; finding moderate numbers of bacilli present and no pus.

Another point is, that tuberculosis may be present in the kidney without either tubercle bacilli or pus appearing in the urine. We have learned the lesson with relation to the sputum, but not thoroughly enough with relation to the urine. The students of pulmonary tuberculosis appreciate the fact that the absence of tubercle bacilli from the sputum is no indication that tuberculosis is absent in the lung, and the same relationship holds true regarding the urine in kidney tuberculosis. The conditions within the kidney may be such that there is a considerable amount of tuberculosis involvement, but there may be no tubercle bacilli in the urine. We must be cautious about excluding tuberculosis because of the absence of either pus or tubercle bacilli in the urine.

Dr. William Chowning (Minneapolis): I would like to emphasize the fact that the presence of tubercle bacilli in the urine is as a rule coincident with the evidence of pus present. I think, in a good many of these cases, if we follow the urine for a long period, we shall find that pus appears. Even though in some of the specimens it may be absent when the organisms are present.

It is a great misfortune that a subject so important as tuberculosis of the kidney, and the diagnosis of it, should be so slow in its development. When we can get tubercle bacilli by catheterizing the ureters, or, more easily, by staining from the naturally drawn urine, we are in about the same position as the patient in whom a diagnosis of tuberculosis is made from the sputum. In other words, the chances of recovery have been greatly reduced by the time consumed before the diagnosis is made. It seems to me that specialists in tuberculosis of the kidney, which occurs so commonly in women, in whom we have got to make a diagnosis between pain in the pelvis of different descriptions and from a prolapsed kidney and other symptoms that would give pain, should make extensive tests of tuberculin in these cases. I cannot see why if we have an active tuberculosis in a kidney the injection of tuberculin should not be resorted to,—not to rely on the vaccination test, but to take the injection method and follow it out closely. As between having a catheter run into my ureter or having tuberculin injected under the skin, I think I would prefer the latter. I think possibly one can do far more damage than good with the catheter, especially if a patient has a moderate tuberculous condition.

Dr. R. E. Farr (Minneapolis): I was about to take the floor to bring up the point Dr. Chowning has mentioned with regard to the use of tuberculin. We should use it more frequently in these cases where we have nothing else to go by. In the early cases we can use it as a form of treatment.

I would take exception to what Dr. Chowning has said with regard to the use of the ureteral catheter. So far as I know, no damage has come from its use. I believe in these cases we must not use tuberculin to the exclusion of the ureteral catheter, but use it in conjunction with the ureteral catheter, and, personally, I would prefer the catheter first in conjunction with the cystoscope rather than the tuberculin in cases where it is necessary.

Another point I want to mention is the one brought out by Dr. Ulrich in regard to the phthalein test. It is going to be one of the good tests for determining the function of the kidneys and should be used in these cases when nephrectomy is contemplated.

Dr. J. W. Andrews (Mankato): The question would arise whether the test just mentioned would be useful in tuberculosis of the kidney. I wish I were more nearly an expert in the use of the ureteral catheter, for I thoroughly believe in it. Suppose in a case of tuberculosis of the kidney we use these vaccine tests or the injection of tuberculin, and we get a positive reaction. It does not determine which kidney is diseased. We have got then to use some means to determine which kidney it is, and, it seems to me, the use of the catheter is fully as simple and requires perhaps less skill than the use of the Harris segregator. I used the Harris segregator a number of times with good success, but I have used it again when I was quite uncertain as to the results. It is not so easy in the hands of a non-expert to place the Harris segregator, so that one is sure that he gets the urine and knows which kidney the urine comes from.

In tuberculosis of the kidney, no one has said very much about hemorrhage, but the rule is that we have hemorrhage, that is, we have hematuria in this condition. Of course, we may have hematuria in other conditions, so that there again one must use means for the differential diagnosis.

I am glad of the fact of the medical profession giving more attention to the differential diagnosis of diseases

of the kidney, for it is not an easy matter under our old methods to diagnose disease of the kidney, such diseases as we have been talking about today, and it is much more difficult to determine which kidney is affected.

Dr. Soren Rees (Minneapolis): We should follow the suggestions outlined by Dr. Strachauer. Zuckerkandl's clinic in Vienna has a large hospital devoted exclusively to kidney cases, and those who have visited there for any length of time and have seen Zuckerkandl work do not hesitate to believe that his methods of diagnosis are reliable. He does not depend on any one test or method of examination, but employs all in an orderly, systematic way. He makes much of the specific gravity and the amount of urine passed, goes through the chemical, microscopical, and freezing tests, and, lastly, catheterizes the ureters, in order to differentiate the two kidneys. Zuckerkandl quotes Baumgarten, who says that tuberculosis of the kidney is always by way of the blood-stream and springs from some infected lymph-gland or other focus, as Dr. Strachauer has pointed out, and practically never ascends from the bladder.

The subcutaneous tuberculin test may reveal tuberculosis somewhere in the body, but cannot in itself locate it. The history, symptoms, and physical examination must decide for us where the infection is located. Catheterization of the ureters is an essential part of this physical examination.

Dr. George Eustermann (Rochester): In the first place, I want to support a few of the statements made by the gentlemen who have preceded me. As regards the use of tuberculin: At Rochester we rarely use it. It is a good test, but, as the gentlemen have said, lots of errors may creep in. We rarely use it in those cases of suspected tuberculosis of the genito-urinary tract. If a patient gives a history fairly definite for renal disease, I feel quite confident that his trouble can be properly and promptly diagnosed if handled by those properly trained and equipped. In such instances we are dealing with problems that require the co-operation of specialized skill, namely, the radiographer, cystoscopist, and surgeon. Besides, it presupposes careful observation, an accurate case-history on the part of the practitioner or internist. Tuberculosis foci in other parts of the body must be eliminated. A study of the temperature-curve and repeated examination if necessary of the urine for tuberculosis, even animal inoculation, are essential steps in the diagnosis of renal tuberculosis. This, in conjunction with the cystoscopic findings and radiograms, makes our task a fairly easy one as regards the nature of the disease, the particular kidney involved, and the extent of the involvement.

Another point is with reference to the colloidal silver plates. We place a good deal of reliance on this test. It shows the possibilities by the penetration of the shadow of how far the focus has extended into the renal parenchyma. It shows the condition of the ureter on the side involved and the location of strictures and other pathological condition should such be present.

Dr. Braasch, in a recent review of 215 surgical cases which have been reported, has emphasized the points as regards the diagnostic features and also as regards the surgical results. I want to say that in surgical disease of the genito-urinary tract a combination of the internist, radiographer, and cystoscopist has made the diagnosis of surgical renal disease almost that of an exact science.

Dr. Strachauer (closing): The discussion has covered the field so satisfactorily that the remainder may be left unsaid. A few words regarding cystoscopy in general: "A little learning is a dangerous thing," and I believe that the limited information to be gained by the use of the direct type of instrument may at times be included in the statement. Direct cystoscopy is limited to the examination of the base of the bladder, and then only in the normal non-distorted organ. With very little training one can use the direct instrument. It is so simple to introduce this type of instrument and look around the base of a normal bladder, particularly in the female. But take, for example, a case of prostatic projection into the bladder with the ureteral openings on the other side of the prostatic mound. Such ureteral openings can no more be seen with the direct instrument than by looking directly at one side of a mountain we can see what there is on the opposite side. It is the indirect cystoscope which permits us to look around the corner and also on the other side.

During the past winter I had two cases of ureteral ulceration with tuberculous kidneys above which had been cystoscoped by surgeons of more than average general ability. The examinations had been limited to the direct instrument with negative findings. In one case the ureteral opening had not been seen due to its abnormal lateral position, and in another due to an obstructing hypertrophied prostate.

The system of lenses possessed by the indirect instrument also gives a greatly magnified picture, so permitting the recognition of pathologic conditions, such as small ulcerations and degrees of congestion, which might not be seen in the unmagnified field of the direct instrument.

The direct cystoscopic examination of other than the female and non-distorted male bladder is incomplete and may give a false sense of security to both practitioner and patient which may prove disastrous.

WHAT NOT TO EXPECT OF MEDICAL SCHOOL INSPECTION AT THIS TIME*

By C. H. Schroder, M. D.
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My purpose in writing this paper is to give you my point of view of medical inspection in general, not to enter into the many details of the system. I fancy that there are current many mistaken ideas of what can be expected at this time. False hopes breed disappointment, and, I am sure, those of us who have already lost some of the enthusiasm with which we greeted the advent of school inspection were expecting things that, from the nature of the case, could not be realized.

I shall ask you to consider with me the manifold duties of the school physician. He is expected to keep the class-room free from contagious disease; he is to discover the defects of the pupils and invent means of remedying them; he is to guard carefully the hygiene of the schoolhouse and to teach personal cleanliness and the laws of health to the children. More than that: By the aid of his nurses and by popular lectures, he is to teach to the community the new gospel of child-welfare. And, finally,—I state it last because it is most difficult,—he is to solve the puzzle of the backward and defective child.

You will admit that this is really a tremendous program, but its rich promise can never be realized by a few men and women working, however faithfully, however intelligently. What, further, then, is needed? Your willing, ever-active, and properly directed co-operation. We have a big lesson to teach, you and I,—the lesson of health, with which there is nothing in our text-books to compare in importance, and which leads us beyond the narrow confines of the class-room into the homes and lives of the children. But do not think that I am urging you to acquire a few elementary facts of physiology and hygiene, to drone away an occasional dreary half-hour. What I want is that you acquire the health point of view; to see at a glance and make your pupils see, all those many things, in the day's routine, which touch, or can be made to touch, upon personal or civic hygiene. Do not think that your lessons will suffer in consequence. On the contrary they will gain infinitely in interest and abiding value. When you have not only taught that a river is so many miles long and flows in such and such a direction and ministers to the commerce of so many cities, but have pointed out that the people of these cities drink of its water and, as a consequence, suffer from the ravages of typhoid fever, you have added a new and vital meaning to the morning's lesson. When you have pointed out that, bad as were the losses of an army in battle, they were small as compared with the number who died of preventable diseases, and what modern medicine is doing to prevent this loss of young and useful lives, you have given a new meaning to the facts of history. But I cannot multiply examples. They are infinite in number and possibility; and it is only when this knowledge is given as part and parcel of the day's work that it will grow and become an integral part of the child's working knowledge. He, too, will have gained the health point of view.

With the younger children, instruction along these lines must take a personal and concrete form. It is impossible for nurse or doctor to see the individual child often enough to initiate those habits of cleanliness which are so simple and therefore so important. If you would look, as I do, into the mouths of these children every day, you would realize what an immense amount of good you could do by insisting on even such a simple thing as the care of the teeth. This, with proper cleanliness of the nose and throat, would bring freedom from the ever-prevalent colds and sore throats of childhood and directly prohibit the development of graver troubles.

After all, the doctor's real mission in the school is not to cure disease or defect, but to prevent them. We may fail entirely in the work of the day, and still reap a big reward in the future. And this is what I wish you to realize with me. It is impossible for us to see that every child with diseased tonsils or with adenoids is operated upon; it is impossible to restore hearing to ears riddled with chronic infections; the wearing of glasses, even when we succeed in overcoming the opposition of both parent and child, is not the ultimate aim of our ambition. Knowing, as we do, that defective vision is continually on the increase, it behooves us to study the causes that contribute to this. Let us do what we can to take the burden of work off the eyes. Let us see to

*Read before the Twelfth Annual Meeting of the Educational Association of Northeastern Minnesota, March, 1912.

it that we have the best possible lighting for our class-rooms, with restful walls, seats properly placed, and black-boards that are *black* and correctly located.

Dozens of similar examples intrude upon me. The point I wish to make is, that while we must do what we can to remedy existing disease or defect, our real big work lies farther back. Just as true as it is that everything in and about the class-room has its bearing on the health of the child, so is it true that everything in and about the class-room is the doctor's business. This is the view that must be accepted by educators, school-boards, and the people before we can look for the big advances. Our business is with the engineering department, and we have the right to insist upon real ventilation, which, in the light of present knowledge, means air of a lower temperature and air that is moist, that is free from dust, and that is kept in motion. Our business is with the physical exercise of the children, and we have the right to see that it is conducted only in open-window rooms. Our business is with the recreation of the children, and we have the right to see that the abomination of a school-building without a playground should no longer be tolerated. If the school-boards have not the funds to purchase grounds, let the city purchase them, so that our public playgrounds are adjoining the school; for we need a speedy return to the old-fashioned recess in the open air and the resurrection of many forgotten outdoor games which passed away with the playgrounds, playgrounds that were once looked upon as the inalienable right of childhood.

In the erection of new buildings, again, we are much concerned, for it is necessary to see that they be provided with open-window rooms for pretubercular children, and also with properly equipped rest-rooms, the need of which is recognized by every principal.

I trust that I have made it plain that medical inspection, if it is to be anything more than a name, has to be recognized as all-embracing in its scope and not a mere department for the routine examination of children. It is doing the inestimable service of bringing the home into intimate relation with the school, and the work which the visiting nurse is doing is also a work big in promise. I say "in promise," for here, again, it is evident that the thorough working of this field is impossible for a few women, however ambitious and devoted. We need your help in the home, and by this personal work, supplemented by parents' meetings in the schools, we aim to revive the co-partnership of teacher and parents, the lack of which is universally felt and deplored.

But I am conscious now of what thoughts arise in your mind. You will say it is impossible for you to acquire the knowledge of a physician or the practical eye of a trained nurse; that you have more work in the class-room now than you can properly attend to. that you cannot be expected to visit the homes of your children; and that, even if you did, you would not know what to do or say.

Now, I admit that we cannot *demand* these things of you. Were we working in an ideal society, you could expect to have clean, healthy children sent to you to be taught; you could expect the perfect hygiene of your class-room to be attended to for you; the home life of the child should be the parents' business, and not yours. That society does not exist. In the interest of the child then, we *request* these things of you. Your place among all social workers is the biggest and the greatest, if you choose to make it such. If you refuse, you handicap yourself; if you accept, even if you work in doubt and misgiving at first, the things we hope for will at least seem possible of achievement. We shall attack with an army where now we work by twos and threes.

If you realized fully, as I do, how even the simplest laws of hygiene are unknown to the great mass of the people, you would not think you were so unfitted for this task. A little reading, a little discussion, more shoulder-to-shoulder work with doctor and nurse, will give you all the information you need; for we remember always that common sense is the most uncommon thing in the world, and how properly the words applied to the blind goddess might be applied to the priestess of Good Health: Oh. Hygeia, how many crimes are committed in thy name!

It must be seen, too, that by working in this way we take steps to remedy the condition of which we complain, namely, that the home is fast turning over its responsibilities to the school. Our business it is, yours and mine, to turn them back again, so that the future can say, not that the school supplanted the home (I fear for that statement), but that it re-created it, nurtured it, and left it stronger than before.

I shall content myself with referring merely to one more topic before I close. One of the most pressing problems of modern education is the problem of the backward and defective child. I think I am right in saying that the doctor was

primarily brought into the school to solve this problem for you. With the first wave of enthusiasm we fondly imagined that every backward child would be found to have adenoids, defective hearing, defective vision, or other measurable defect, and would straightway be put on the royal road to promotion. These were premature hopes. destined to speedy blasting. I am not denying, of course, the connection that does exist between physical and mental defects, using these terms in their ordinary significance; but I have frequently been astonished at the number of children mentally backward and physically perfect. Likewise, I am continually observing how gross physical defects may be compensated for, as far as mentality is concerned. So, without detracting in any way from the need of correcting these defects,—for they are always a handicap,—still, the limits of advance here, as far as unaided medicine is concerned, are plainly in view. As a general proposition, before we can help a mentally deficient child, we need a good, working mental diagnosis, and it is to the psychological laboratory that we need to look for assistance.

I hesitate to enter upon this question because here, at least, you will say I am intruding upon your business. Are not your libraries full of works on the psychology of education? Is not every kindergarten teacher fully equipped to worked out the hidden pathways of the brain, and science until the neurologist and physiologist psychology never dreamed of being a practical meet every wonderful psychological trait of the twentieth century five-year-old child? Is it not under the sun, even in psychology? Nevertheless, I set cheerfully about my task to show that true, as Miss Lawrence told us yesterday in her very interesting talk, that there is very little new located the various centers that control the auditory, visual, tactile and speech functions. All of this is very new, as far as science goes, and the same impetus it gave to the surgery of the brain and the study of nervous diseases, it gave to psychology as a practical science, and we hope will eventually give to educational practice. Knowing what great advances have been made, is it too much to hope that we may yet attain to the happy day when we can take, in something like a practical way, an inventory of the basic mental equipment of a child, and thus be in a fair way to help him overcome his limitations. When that day comes—God speed it—so-called systems and fads of education will fade away. When we know the cause of a disease, the false remedies disappear and the true are proven.

Realizing, as we must, that the beginning of backwardness is in the very lowest grades, the conclusion seems evident that there are certain basic mental operations that have never been properly invoked. What accounts for the common backwardness in arithmetic, for example? The visual memory for figures is fundamental here, but the introduction of the highly complex factors of imagination, reasoning, and abstraction, makes it difficult to determine the cause, or causes, of trouble. But they *must* be determined if we are ever to remedy the condition. It seems certain that number-sense often develops very late, and an early abstract presentation of numbers seems somehow actually to spoil many children for mathematics. So, in reading, writing, and spelling, I think it is true that a quick and active visual center for words is the essential, and the substitution in young children of the auditory center, or the touch-centers, as in the very latest method of the auditory center, or the touch-centers, as in the very latest methods of Montessori, should be recognized only as temporary makeshifts. In connection with this, I wish to call to your mind the remarkable results that Catherine Aiken achieved by exercises directed specifically to the training of attention, which, it is hardly incorrect to say, is memory. Here was correlation of energy that should offer us hope, even in the perplexities of the modern classroom.

I trust that I have said enough to make my point plain that it is outside of purely medical lines that the solution of the problem of the backward child lies. The way is slowly being opened that will lead to big advances in the near future. Recognizing, however, that education is but one factor in the great trinity of heredity, education, and environment, the hope that there ever can be even an approximate standardizing of children is, of course, baseless. The introduction of the Binet-Simon tests has demonstrated, beyond a doubt, that, in many laggards, the mental age is fixed. With these children tactile and muscle sense training must supplant traditional methods of teaching, and the sooner this truth is realized, the quicker will a hopeless burden be lifted from the classroom. Nevertheless, I am not in sympathy with those who would educate every child only along the path of least resistance. Now, as always, we know that development presupposes resistance, whether it be of the physical, mental, or moral order. Only the conviction, based on accurate analysis, that progress along certain lines is definitely precluded, should justify that position.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

UEBER EINIGE MODERNE METHODEN MEDIKAMENTOSER BLUTSTILLUNG

By DR. A. STUHMER

Der Zeitschrift Fortschritte der Medizin

After discussing the various means for controlling hemorrhage, such as the calcium salts, gelatine, adrenalin, and serum therapy, Stühmer concludes that the most effective agent is sodium chloride. He describes Van der Velden's experiments in which 10 grams of sodium chloride per os in seven to fifteen minutes markedly raised the coagulability of the blood, this effect lasting from one to one and one-half hours. As he was able to produce the same results with the bromides, he did not regard this as a specific action, but as due to an increased fluid interchange between the tissues and blood-vessels, which in some way liberated thrombokinase.

His clinical results were excellent, and in some severe cases he gave as high as 30 grains of NaCl and 15 grains of sodium bromide. When a stomach rebelled at this dosage he gave 3-5 cc. of ten per cent salt solution intravenously with equally effective and harmless results.

Stühmer, while feeding a gastric-ulcer patient grape sugar intravenously, noticed that it stopped the severe and continued hemorrhage. He repeated it in other cases of hemorrhage, giving frequent doses of 200 cc. of twenty per cent grape sugar intravenously, with brilliant results. He thinks that it acts in the same way as the sodium chloride, and he is conducting further experiments to confirm his findings.

This scientific trying out of a much-derided but universally employed housewife's hemostatic is of peculiar interest. E. J. HUENEKENS.

THE DIFFERENTIAL DIAGNOSIS OF CERTAIN INFECTIOUS DISEASES

By FREDERIC THOMPSON, M.B., C.M., D.P.H.

The Lancet (London), March 2, 1912

The author shows, by means of the records of primary diagnoses in the case of admitted patients, how frequently mistakes are made in the diagnosis of the exanthemata. Especially difficult is the differential diagnosis between scarlet fever and German measles, and between chicken-pox and smallpox. In the differential diagnosis of border-line cases of scarlet fever and German measles, he emphasizes, as helpful and important, the enlargement of the post-auricular and occipital glands in German measles (provided these are not due to pediculosis), the more acute and severe onset of scarlet fever, and both the character and distribution of the rash in the two diseases.

In all cases of German measles the rash has a tinge of pink, while this is very rare in scarlet fever. The rash of scarlet fever rarely appears in the circum oral region or at the sides of the nose, and is more pronounced on the inner than on the outer aspect of the thighs. The pin-hole desquamation of scarlet fever is in sharp contrast to the powder-like desquamation of German measles.

In differentiating between chicken-pox and smallpox the most important point is the distribution of the eruption. In smallpox the lesions are most numerous on the face, next on the upper extremities, then on the lower extremities or back. They are more numerous on the forearms than on the upper arms, and still more so on the hands. In chicken-pox the lesions particularly affect the trunk, next the face, and then the extremities, and on the extremities they become less numerous distally. In smallpox the lesions are all at about the same stage of development; in chicken-pox they are in all stages.

E. J. HUENEKENS.

THE ASSOCIATION BETWEEN MITRAL STENOSIS AND RENAL FIBROSIS

By JOHN COWAN AND GEOFFRY B. FLEMING

The Quarterly Journal of Medicine, April, 1912

In an investigation of the blood-pressure in 59 cases of organic mitral disease, the authors found it below normal in many cases, but above normal in the majority of cases. Of 11 cases of uncomplicated mitral disease in which the kidneys were found to be more or less fibroid, the maximum systolic pressure was above normal in 8 cases.

The relationship between mitral stenosis and renal fibrosis may arise in four ways: (1) It may be accidental; (2) the renal lesion may be the cause or the result of the mitral disease; or (3) both may own the same origin.

That the association is not accidental is proved by the fact that mitral disease is three or four times more frequently present in cases of granular kidney than in those whose kidneys are normal.

The renal lesion may be the cause of the mitral disease, and while the large majority of cases of mitral disease are due to rheumatism and other infections, there are a few cases which cannot be explained on that basis. The authors present three cases, with post-mortem findings, in which there was absolutely no previous history of illness, and in which renal fibrosis was found.

There is evidence that in a few cases the renal lesion may be the result of mitral disease, but only indirectly. Cardiac disease predisposes to catarrhal conditions of the liver and gastro-intestinal tract, which, in turn, through faulty metabolism and consequent irritation of the kidneys, may produce renal fibrosis.

There is much to show, but no absolute proof,

that mitral stenosis and renal fibrosis are due to the same cause.

Of the causes, the most likely are the puerperium, syphilis, and scarlet fever.

In conclusion, the authors state that the blood-pressure in mitral stenosis is often normal or subnormal, but even more often above the average. The persistence of high blood-pressure in the absence of edema, strongly suggests the presence of renal fibrosis. E. J. Huenekens.

A STUDY OF THE ELIMINATION OF PHENOLSULPHONEPHTHALEIN IN VARIOUS EXPERIMENTAL LESIONS OF THE KIDNEY

By A. B. Eisenbrey, M. D.

Journal of Experimental Medicine, Vol. xiv., No. 5, 1911

The successful use of phenolsulphonephthalein by Bowntree and Geraghty as a clinical test of the functional activity of the kidneys, suggested to Eisenbrev its employment in the study of some of the problems of experimental nephritis. Female dogs were used for the experiments, and the technic was, in general, that recommended for clinical use by Rowntree and Geraghty. Within an hour after the animals had consumed from 200 to 300 c. c. of water, 1 c. c. of the standardized solution of the dye (equal to six milligrams of the dry substance) was injected subcutaneously into the thighs. By early catheterizations of the bladder, its first appearance in the urine was determined, and when this point had been fixed, the percentage of elimination in the one and two hour periods was worked out. At the end of each of these periods, the bladder was catheterized and washed out with boiled filtered water. For estimating the percentage of the elimination a Duboscq colorimeter was used, according to the directions of Rowntree and Geraghty.

In normal animals the dye first appeared in the urine upon an average of five minutes after injection. The normal average elimination for the first hour was 50.98 per cent, and for the second hour 21.35 per cent, a total of 72.33 per cent, figures which correspond to those of Rowntree and Geraghty for the normal kidney of man.

In cases of so-called "spontaneous nephritis" and in experimental nephritis due to potassium chromate, uranium nitrate, cantharidin, diphtheria toxin, and arsenic, and also in those lesions caused by snake venom, hemolytic serum, prolonged renal anemia, and extensive reduction of the kidney substance, it was found that the elimination of the test-dye was decreased.

In three cases of "spontaneous nephritis" it was noted that, coincident with a decrease in the albumin content of the urine, there occurred an increased elimination of the dye. This is analogous to results secured by Rowntree and Geraghty, who found that, if surgical patients, who showed a dangerously low elimination, were given careful pre-operative treatment, there occurred a marked improvement in the elimination of the dye. Such a point, the writer believes, might be made a reliable method of demonstrating improvement in the functional activity of the kidney.

In the nephritis induced by uranium nitrate (0.015 gram, subcutaneously) there was a characteristic preliminary *increase* in the elimination of the dye during the first twenty-four to forty-eight hours. Later, on the third or fourth day, there occurred the typical progressively diminishing total elimination.

In a severe nephritis produced by potassium chromate, there was at the end of twenty-four hours a decrease of 30 per cent in the total elimination.

In arsenic nephritis (produced by giving 0.02 gram of arsenious acid each day for three days) the elimination showed very little change until forty-eight hours after the final dose of arsenic, when both the total elimination of the dye and the quantity of urine were markedly diminished.

In four experiments on diphtheria nephritis the time of appearance of the dye was delayed and a marked fall in its total elimination occurred.

In two cases of unilateral nephrectomy there occurred, after a short period of lowered functional activity, a compensatory hyperactivity, which reached its height in about five days. This was followed by a return to a lower level in about fifteen days. Rowntree and Geraghty have shown that after nephrectomy in man the functional activity of the remaining kidney, as indicated by the phenolsulphonephthalein test, rapidly reaches the normal.

The writer believes this study of a variety of experimental renal lesions in the dog demonstrates that the phenolsulphonephthalein test of Rowntree and Geraghty is one of the most satisfactory and at the same time most delicate methods of estimating the functional activity of the kidney. E. T. F. Richards.

THE TREATMENT OF BUBONIC PLAGUE BY THE IMMEDIATE INCISION OF THE GLANDS

By V. B. Nesfield, F. R. C. S.
ENGLAND

Lancet, Nov. 4, 1912

During the severe epidemic in Lucknow, in 1907, Nesfield treated 62 cases of bubonic plague by early incision of the swollen glands. Fifty-four of the 62 recovered, thus giving a very low mortality for this disease (15.3 per cent).

He justifies his procedure by a rather unique conception of the pathology of plague, viz., that the bacilli, gaining entrance through the skin, rapidly circulate in the blood and lymph glands. "The organisms, being shut off from the blood-stream, develop rapidly and elaborate toxins, which may produce death in a few hours."

From his own experience he believes that early incision into a plague gland produces an immediate improvement in the patient's condition. The temperature is lowered, and the severe headache abated; and if the patient is seen during the first twenty-four hours, the probability of his recovery is very great.

Owing to the general belief that bubonic plague is a poladenitis of so extensive a nature that eradication of infected glands is an impossibility, the author fears that many reading this article will not be convinced of the very great benefit derived by immediate incision, but he believes that "no one should be afraid of the experiment, for, whatever other measure is undertaken, eight to nine patients out of ten will die, while, by employing incision, only one or two will die out of ten." E. T. F. Richards.

UEBER EINE METHODE DER FUNCTIONSPRUFUNG DES PANCREAS

By Dr. Rud Ehrmann, Berlin

Berliner klinische Wochenschr., No. 29, 1912

Ehrmann refers to the modern methods of proving the activity or inactivity of the pancreatic secretion as established by the work of Wohlgemuth for the diastattic ferment, Boldyreff for the lipolytic, and von Volhard, Fuld, Gross, Ed. Müller, and Schlecht for the tryptic ferment.

To all he raises an objection based upon the time consumed in their application and the amount of special apparatus required.

He would substitute a color-test adapted both to qualitative and quantitative estimation. This test depends upon the fact that neutral fat wholly free from fatty acids is acted upon primarily by the fat-splitting ferment of the pancreas and by nothing else.

Commercial Palmin he finds well adapted to this use, whereas milk, cream, butter, and oil are not available substances because splitting them involves the action of more than one ferment.

Method:—The test-meal, consisting of 30 gms. of rice starch dissolved in ¼ liter of water and warmed, to which are added a pinch of salt and 75 gms. of Palmin rendered fluid by the previous application of heat. After thorough mixing and stirring, this fluid meal is swallowed, retained by the patient for from 2 to 2½ hours, and then removed by the stomach-tube.

A portion of the residue recovered is then shaken thoroughly in a test-tube with an equal amount of

Solution No. 1, ether petrolei (benzine)..... 90.0
Benzol ad 100.0

The resulting superimposed ethereal layer is then decanted and thoroughly shaken with an equal amount of

Solution No. II Cupri acetici..... 3.0
Aqua dest. ad.....100.0

Again, a superimposed ethereal zone forms and, in the presence of an active pancreatic ferment, takes on an emerald-green color, which varies in intensity with the amount of ferment present.

If HCl is present in excess, as shown by its strong action upon Congo paper or by the usual quantitative tests, the meal may be repeated with the addition of a teaspoonful of sodium bicarbonate.

No extended reference is made to any quantitative method, and it would seem that some more accurate colorimetric measurement would be most desirable.

C. L. Greene.

DIAPHRAGMATIC HERNIA DIAGNOSED, BEFORE OPERATION

By Norman B. Carson, M. D., and Leo Huelsmann, M. D.,
st. louis

Interstate Medical Journal, April, 1912

Diaphragmatic herniæ diagnosed before operation are comparatively rare. The authors emphasize the following points in diagnosis. Most striking was the regularity of pain occurring on arising in the morning, uninfluenced by eating and disappearing after the patient had been up for a time. This was due to the gradual return of the bowel to the abdomen. The most important single sign is intestinal noises in the chest. Other important physical signs are prominence of the affected side of the chest and diminished respiratory excursion; displacement of the heart; drawing in of upper abdomen; absence of breath-sounds; changes in the percussion-note, and especially the changeable character of signs on change of position of the patient.

Diaphragmatic hernia must be differentiated from hydropneumothorax and from gas-containing subphrenic abscesses.

The assistance of the *X*-ray is almost indispensable to the confirmation of the diagnosis.

In the authors' case it was found necessary to make both a pleural and abdominal opening to reduce the hernia, though, in the ordinary case, the pleural incision is sufficient. E. J. Huenekens.

THE OCCURRENCE OF TRICHOMONAS HOMINIS IN GASTRIC CONTENTS WITH A REPORT OF TWO CASES

By B. Smithies
rochester, minn.

The Journal of the American Medical Sciences, July, 1912

Very few cases of trichomonas hominis occurring in the gastric contents have been reported. Both of Smithies' cases had previously resided in semitropical climates and had habitually partaken of unboiled water from surface wells and had eaten freely of fresh moist green vegetables and fruit in all probability contaminated. Gastro-intestinal symptoms, nausea, flatulence, abdominal distention, colicky pains, and constipation,—were present in each case, and such "intoxication symptoms" as headaches, neuralgia and exhaustion were observed. The blood showed a slight anemia with increase in eosinophiles and many degenerated leucocytes.

Treatment consisted of heavy doses of calomel and salts twice a week and dilute hydrochloric acid (2 c.c.) after meals, and relief of symptoms followed.

Freund has reported not only intestinal irritation and toxemic symptoms, but a true acute enteritis as a result of the activities of this parasite.

E. J. Huenekens.

ASTHMA AND TUBERCULOSIS

By H. Z. Giffin

Amer. Jour. of Med. Sciences, December, 1911

Dr. Griffin, in this paper, brings out very forcibly the association of asthma and tuberculosis, and the necessity for careful exclusion of a tuberculous lesion in making the diagnosis of asthma.

During a year's time, 226 cases of pulmonary tuberculosis and 82 cases of spasmodic asthma were seen. Three cases are of early advanced and extensive tuberculosis, illustrated, all in conjunction with asthma.

The positive sputum and radiographs emphasize the importance of the aid derived from their use in the routine examination of the asthmatic chest.

F. A. Olson.

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JANUARY 1, 1913

THE PHYSICIAN AS AN EUGENIST

Every medical man must frequently play the part of an eugenist, and it is safe to say that no other class in the community is so frequently confronted with the question, "Ought I to marry?" As a rule, the profession has met the situation honestly, and as intelligently as our circumstances permit, but there are so many unsolved problems in respect to the influence of heredity and environment on offspring that every conservative person must often find himself at a loss before this momentous question.

If, as most medical men believe, the Darwinian theory of evolution be correct, then we are facing a problem in which Nature herself has been engaged for untold centuries, and it is hardly to be expected that we shall suddenly find ourselves in complete possession of the secret, nor is it likely that in the immediate future we shall be able to solve the multitudinous problems involved. Probably the best feature of the present general discussion of this subject is its educational value, and, though it behooves us to speak with modesty concerning many points on which our advice may be asked, it is not too much to expect that, in the near future, the average layman will not be ignorant of the fact that he himself must bear the burden of many favorable or unfavorable influences, entirely aside from environment, which enter into the life of his offspring. Indeed, with the present social tendency, it is necessary that such knowledge shall become a part of the working capital of mankind if we are to continue to progress; for, out of the kindness of his heart, man has seen fit to interfere with the working out of the law of the survival of the fittest, and, as matters now stand, there is a very strong tendency in the highest civilizations, to aid, through the various philanthropies, the weak and the unfit more than the strong and the fit.

But just as no other class in the community meets the problem of heredity so often, so no other class is more aware of the great difficulty of a practical solution. In a general way, there are two methods of meeting the situation: first, the restriction of offspring from the unfit, and second, the positive encouragement of parenthood among the physically and mentally strong. To the first of these propositions there would seem but litle ground for objection on the part of rational beings, especially when one realizes that the offspring per person of the feeble-minded portion of the community is at least twice that of the remainder, and that an instance of a normal child born to two feeble-minded persons is unknown to science. To merely forbid marriage, however, is of little use, for, unfortunately, marriage and maternity are not terms that necessarily coincide. When marriage is made difficult it may be only an additional incentive to vice. The only positive restraint is segregation or sterilization, and for the habitual criminal, the permanently insane, and the feeble-minded, it would seem that either is justifiable.

When one comes, however, to consider what may be done positively to encourage parenthood, one meets with obstacles which are at present apparently unsurmountable. No one doubts that the pregnant woman and the nursing mother should be properly housed, and this in the interests of the child to be, if not for the mother.

But what can or should be done to cause the so-called fit element in the community to breed more rapidly? We complain much about the rich and well-to-do not assuming their proper share of child-bearing, but where is the evidence that the socially and financially successful members of the community are really the psychophysically fit? It is well known that the workman has children more rapidly than his employer, but there is no evidence that the children of the employer will be better than those of the employee. Indeed, there is much evidence point-

ing the other way. Fahlbeck, for example, has shown that in the Swedish nobility, where marriage is always between those of the same social rank, there is a progressive deterioration, which shows itself in the large number of sterile marriages, a fecundity less than that of the death-rate, the early death of the children, and the consequent constant dying out of titled families, so that 70 per cent of the original noble families are now extinct, and, though there is a constant influx of recently ennobled families from the commoners, there is no increase in the total number of titled individuals. A similar situation is found in the ranks of the nobility of Great Britain and other countries.

It would seem, then, that we have reached the point where we might well attempt, by segregation or sterilization, to lessen the reproduction of the notably unfit; that we might, when necessary, furnish proper care for the mother-to-be and for the new-born child, but any attempt to carry out the proposal of Malthus, that we should promote reproduction from the "superior classes," and repress it from the "inferior classes," must at least wait until we can determine who constitute the superior and who constitute the inferior, classes.

MENINGEAL TEARS AT BIRTH

In an abstract in the *Journal of the A. M. A.*, from the *Hospitals Tidende,* Copenhagen, for Nov. 6th, the dangers from "Laceration of the Dura Mater of the Child during Delivery," is graphically described by L. Meyer and E. Hauch, Examination of the skulls of sixty-four infants dead or dying soon after birth at the Copenhagen Materenity, showed rupture of the dura in twenty-eight cases. The laceration was the cause of death in only twelve of the cases. The proportion was thus 1 per cent in the total of 1,200 deliveries during six months. The tentorium is usually the seat of rupture, although it may occur in the falx or the longitudinal sinus.

A laceration may occur and the child may live. The extent and the location of the tear in the membranes varies considerably. Ruptures are most likely to take place in prolonged or abnormal labors, particularly when forceps is used. Rupture of the membranes probably accounts for the many still-born children and those dying soon after birth, but as an autopsy is difficult for the average obstetrician to obtain one cannot tell how many deaths are due to this accident. In well-formed children who develop rupture it is usually after a difficult labor, but it has occurred in spontaneous deliveries and even where Cesarean section has been performed. Forceps properly applied seems to minimize the dangers, and if no further difficulties arise there seems to be little or no danger, but if the labor is interrupted or requires forcible extraction of the child and particularly if the pressure on the head is from the front backward, there is greater danger.

It seems rather remarkable when one considers how often the forceps is recklessly applied that more ruptures in the membrane do not take place. Too often the operator is in a hurry, and if the labor is slow he may use force enough to decapitate the child, yet how infrequently do we hear or know of disasters to the dura?

Unfortunately some obstetricians in large cities do not spend much time at the lying-in-bed. They give a few whiffs of chloroform, apply the forceps, deliver, and go on to the next case. The nurse is given full charge, and the baby lives, or dies, and either by the "will of God."

It would be interesting to know how many fatalities occur from difficult labors and how many of those would show a tear in the dura.

Considering the dangers which constantly surround the pregnant woman and the dangers of intra-uterine life from infections and accidents, it is a wonder that so many children survive the ordeals.

The one compensation is, that enormous numbers of children are born naturally without instrumental aid, or at least are ushered into the world by careful, patient physicians and midwives.

FRIEDMANN'S CONSUMPTION CURE

When Friedmann of Berlin announced his cure for consumption it was heralded broadcast over the country in glaring headlines by many newspapers. Of the majority of the newspapers only one, the Grand Rapids (Mich.) *Evening Post* seemed to realize its responsibility to its readers and showed it by a conservative editorial in which it said: "Similar announcements have been made before, and the 'cure,' under extended observation, has always failed." If other papers had taken a more cautious view of the situation and had withheld judgment until the process of cure had been demonstrated, it would have been far better for the country. At present the usual number of enthusiasts have developed, and doubtless a large number of persons have been inoculated needlessly. The medical press still

waits for more definite details in the manner and source of the preparation of the "cure" and in the results obtained.

The suffering tuberculosis public are again aroused with hope of a speedy and sure agent to cure them of their ills. Many physicians have been impressed and have inconsiderately expressed their convictions that the new remedy is unfailing. As time goes on these men may withdraw some of their hastily formed opinions, and some have already done so, or at least are not so sure that the injection is all that is claimed for it.

Sensational cures of this sort are usually speedily commercialized, and it is to be hoped that Friedmann will put aside this aspect of the situation and give to the physicians full and free details without other reward than may come justly to a man who may benefit so many human beings.

Some years ago "Friedmann announced that he was using tubercle bacilli from cold-blooded animals (turtles), but he has not informed the world whether his present remedy is from the same source." "He simply describes it merely as a living avirulent bacteria material of tuberculous nature."

The danger from injections of this and other untried remedies is very great, in that they not infrequently produce the disease or promote its activity where they had hoped to cure. Another danger, and perhaps a greater one, is that unreliable physicians and charlatans either use the new remedy indiscriminately, or fraudulently for gain.

Up to November 18th the cure had been applied to 1,182 cases of tuberculosis of all kinds.

The injection is used intramuscularly in tuberculosis, and as a prophylactic in 335 children from one hour to 3 years old, in 90 per cent of whom a preceding skin tuberculin test had given a positive reaction. It is evidently too early to enthuse over the results, but if it is good and can be placed in the hands of the general practitioner the tuberculosis question will be simplified.

THE 1913 ROSTER

We expect to publish the roster of the Minnesota State Medical Association in our issue of February 1st. If you have not paid your county society dues, now is the time to do so.

REPORTS OF SOCIETIES

THE MINNESOTA ACADEMY OF MEDICINE

The Academy met at the Town and Country Club Wednesday evening, Dec. 4th.

Dr. H. Longstreet Taylor reported the new treatment by graduated labor which has been adopted at the State Sanatorium for Consumptives. Dr. Taylor said:

NEW TREATMENT AT STATE SANATORIUM FOR CONSUMPTIVES

Under the new superintendent, Dr. G. W. Beach, auto-inoculation by graduated labor is to take the place of the rest, fresh air, and food treatment that is usually employed in our sanatoria.

This auto-inoculation treatment has been worked into a scientific scheme by Dr. Paterson at the Frimley Sanatorium, near London, England. Dr. Paterson saw that his patients were unhappy sitting around doing nothing, and he began by giving them something to do to help them pass away the time, as everybody is happier when occupied than when idolent. Little by little he worked out his present system and found that he obtained just as good results as could be obtained by any other method, and that his patients, all of whom belonged to the working class, returned to their homes quite able to take up their life's work where they left it off when taken sick, because they had been doing, six hours a day, the hardest kind of physical labor for six weeks before their discharge.

As practiced at present he begins with rest in bed until fever and rapid pulse have yielded. Whenever Paterson speaks of rest, in his book, he refers to rest as we understand it in severe typhoid cases. The nurse does everything for the patient, who is not allowed even to feed himself. The first exercise is a short walk, which is repeated daily for a week. It is then lengthened from time to time until the patient is walking six miles a day, after which he is put into the lowest labor grade, digging with small shovel, carrying the dirt a short distance in a small basket, and so forth. He then passes on from grade to grade of labor until he is able to do the hardest kind of physical work.

Whenever a patient does too much work he has some fever and a rapid pulse, due to an auto-inoculation, and he is immediately "imbolized." After a few days the symptoms disappear, and he again returns to the ranks of the workers and is now able to do the work that gave him a reaction without any harm, because his tolerance has been raised by the action of the large dose of his own tuberculin, which the labor gave him.

This treatment was shown to have the same effect on the patient as injections of tuberculin by an expert from Wright's laboratory, who spent months at Frimley working out the opsonic index of the patients and finding the gradual rise in the count of the workers as they passed on from grade to grade. The prolonged

negative place was also found in the cases that suffered a peculiarly severe reaction.

So marked has Paterson's success been that the principality of Wales put him at the head of the anti-tuberculosis work for that country with a fund of $7,500,000 to spend at his discretion.

Probably many of you here present will hear from your patients who are at the State Sanatorium now, or who will be, and it would be well for you to remember that any work given the inmates to do is for their own good. It is the shape that their treatment will assume and is not imposed on them for the benefit of the institution or to lower the per-capita cost to the State.

Dr. E. M. Lundholm presented a specimen, and reported the case of a carcinomatous kidney. He emphasized the unreliability of microscopic findings and stated that in this case the pathologist had examined the fresh specimen and pronounced it non-malignant; but later, after the woman had begun to develop secondary growths, the same pathologist made another examination of the same specimen and pronounced it carcinoma.

Dr. Gustav Schwyzer reported a case of obstruction of the bowel by a large gall-stone.

Dr. T. S. Roberts reported a case of death from fecal impaction. He had made an autopsy, and he exhibited the impacted rectum. The woman was 44 years old, was a Christian Scientist, and had rejected all ordinary treatment because of this faith. His diagnosis was, "Immediate cause of death, toxemia due to the impacted bowel;" contributing cause, "Christian Science Insanity."

Dr. L. A. Nippert reported a case characterized by severe headache coming on suddenly, in a woman 33 years old, pupils dilating, Kernig sign present, and later coma and death. His diagnosis was tubercular meningitis. He asked Dr. Robertson to state the findings at autopsy.

Dr. Robertson stated that he found a metastatic carcinoma of the liver and of the brain. There were nodules in the meninges as large as the finger-nail, and the whole brain was involved. The primary carcinoma was found in the breast, but was so slight that it had not been recognized until found at the autopsy.

Dr. A. A. Law read the paper of the evening, entitled "Membranous Pericolitis." The paper is based upon a series of 24 cases occurring in his own practice, and was illustrated by stereopticon reproduction of skiographs of the cases.

The paper was discussed by Drs. Moore, Benjamin, and MacLaren. Dr. Law summed up the discussion.

A. W. Dunning, M.D., Secretary.

NEWS ITEMS

Dr. T. H. Yeomans has located at Minot, N. D.

Dr. C. N. Ghent has located at Graceville, Minn.

Dr. H. C. Doms has moved from Holland to Slayton.

Dr. David Gordon of Albert Lea has moved to Boulder, Colo.

Dr. N. E. Todd has moved from Albert Lea to Hagerstown, Md.

Dr. Walter N. Lee has moved from Hopkins, Minn., to Mayville, N. D.

Dr. Sverre Oftedal has moved from Climax, Minn., to Missoula, Mont.

Dr. George McIntyre has moved from Mayville, N. D., to Minneapolis.

Dr. A. G. Chadbourn has moved from Redwood Falls to Heron Lake.

Drs. George and Mrs. George Earl, of St. Paul, have returned from Europe.

Dr. H. W. Hendrickson, of Montevideo, died last month at the age of 44 years.

Medical inspection will be introduced in the Lisbon (N. D.) schools this year.

Dr. A. E. Gage, a graduate of the University of Illinois, has located in Parker, S. D.

Dr. M. W. Wheeler, of Glencoe, was married last month to Miss Ruth Funk, of St. Paul.

Dr. Frank W. Metcalf has resumed his practice at Winton after an absence of six months.

The Yankton (S. D.) Board of Education has adopted medical inspection for the city schools.

Dr. Charles Schoregge, a 1910 graduate of the University of Michigan, has located at Goodhue.

The Benedictine Sisters have opened a hospital at International Falls. It is called the St. James.

Dr. Albert E. Spear of Belfield, N. D., was married last month to Miss Beatrice Nelson of Dickinson, N. D.

Dr. L. G. Smith has moved from Buffalo to Montevideo and become associated with Dr. C. M. Johnson, of the latter place.

Dr. Phillip J. Mueller, of Minneapolis, has been convicted of manslaughter because of the death of a woman in whom he had produced an abortion.

Dr. N. L. Heller of the Presbyterian Hospital of Chicago has accepted a position on the staff of the Shipman Hospital, with Drs. Ayres and Parker, of Ely.

Dr. J. P. Ayten, who has been chief surgeon of the N. P. Hospital at Missoula, Mont., has decided to resume general practice and will locate in Fargo, N. D.

Examination of school children in the rural districts of Olmsted County has been going on for some time, and of over 300 pupils examined 26 per cent have been found defective.

Dr. Russell D. Carmen, who has been in charge of the *x*-ray work of the Washington University, of St. Louis, Mo., has taken charge of the same work in the Mayo Clinic, Rochester, Minn.

The physicians residing in the district between St. Paul and Minneapolis met last month at the Midway General Hospital for the purpose of forming a medical society for clinics and discussions. Another meeting will be held Feb. 1st.

Dr. Rollo C. Dugan of Eyota has sold his practice to Dr. Dorr Hollenbeck, a graduate of the College of P. and S., Chicago, who has been practicing at Goodhue. Dr. Dugan has spent most of his professional life in Eyota, and will be greatly missed. He goes to Nebraska to do the surgical work of a large hospital.

The Minneapolis Milk Commission of Hennepin County Medical Society has issued a warning against keeping warm milk in Thermos bottles and then giving it to children. Even in boiled milk so kept bacteria multiply at an enormous rate. The milk should be kept cold in these bottles, and a portion of it warmed as needed.

The Mitchell District Medical Society of South Dakota held its annual meeting at Mitchell last month. Papers were given by Drs. E. F. Reamer, C. S. Bobb, C. E. McCauley, C. V. Templeton, Clara McManus, and E. R. Kramer. The following were elected officers for this year: President, Dr. F. W. Freyberg, Mitchell; vice-president, Dr. G. A. Clauser, Bridgewater; secretary, Dr. C. S. Bobb, Mitchell; treasurer, Dr. F. S. Kidd, Woonsocket.

The Sixth District Medical Society of North Dakota met last month at Mandan. Dr. Rice of Cannon Ball read a paper on the cause of tuberculosis among the Indians; Dr. Smyth of Mandan spoke on the value of vital statistics, and Dr. Quain of Mandan gave an account of the recent medical congress at Washington. The following were elected officers for the current year: President, Dr. Martin Kranz, Bismarck; vice-president, Dr. P. F. Rice, Cannon Ball; secretary and treasurer, Dr. H. O. Altnow.

The North Dakota State Medical Association held a special meeting at Devils Lake last month, in the main, to consider the medical legislation that will be before the state legislature this winter. Medical school-inspection was recommended for general adoption throughout the state. The Association put itself on record against throwing upon the profession the responsibility for the liquor traffic, as is done when liquor is dispensed only upon physicians' prescriptions. An educational campaign in medical matters that concern the public was advocated. The quack doctor was severely condemned, but the matter of suppressing quackery through legislation was left to the legislative committee. The meeting was an eminently successful one.

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This institution for the treatment of tuberculosis calls special attention, in its announcement on another page, to its capacity for service in this particular line. Its buildings, its high-class service, and its environment meet the demands of physicians for patients who may be cured provided Nature receives the aid that the forethought and skill of man can furnish.

Dr. Hay, the medical director, will be glad to correspond with physicians whose patients need such care and treatment as his institution can give them.

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The number of patients who come from the country to the Twin Cities for treatment for alcoholic and other drug habits, and who fall into the hands of laymen or medical quacks, is very large and is constantly increasing.

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THE MEDICAL PROTECTIVE COMPANY

The medical defense feature of a state association was never intended to supplant the defense that the private insurance company furnishes, for each has its place and each is admirable. The low cost of the former appeals to every physician, and the average general practitioner does not need any other insurance; but the specialist and the general practitioner doing a large work seem to be shining marks for damage-lawyers, and so must carry other insurance. For all such the Medical Protective Company of Fort Wayne, Ind., offers a very attractive policy.

HIGH-GRADE SANATORIUM TREATMENT FOR THE TUBERCULOUS

Tubercular patients, under the present day methods of treatment, are peculiarly susceptible to the influences of their surroundings and mode of living. On account of the extended duration of the treatment, it is necessary that, in addition to skillful treatment, particular attention be paid to their creature comforts if the most rapid and certain results are to be expected. That the proper conditions are seldom found under so-called "home treatment," unless the patient has had previous sanatorium training, is generally recognized, and that the conditions can only be approximated in many sanatoria, is also evident when the expense of providing the necessary equipment and service is considered.

As an instance of this, the River Pines Sanatorium for Tuberculosis, a private sanatorium at Stevens Point, Wis., offers a good example. This institution has a capacity for but 41 patients, yet it requires 22 people to maintain the type of organization and service that the institution provides. Two resident physicians, who confine their practice exclusively to the sanatorium patients, a superintendent, five nurses, a skilled dietitian, a cook with two assistants, three janitors, and seven dining-room girls, cleaning women, etc., comprise the staff. In addition to this, about $80,000 has been expended in buildings and equipment during the past six years, and additional improvements are under way or contemplated for the early spring. From this it will be seen that an unusually large investment and allowance for running expenses is required to maintain this institution. That the River Pines type of service cannot be secured in other than a private sanatorium, is true because of the excessive cost of maintenance.

Service is undoubtedly the basis of the satisfactory results that are obtained in the high-class private sanatoria. To those patients whose resources permit an outlay of $25.00 a week or upwards, these institutions, such as River Pines, offer the assurance of treatment under the most nearly ideal conditions.

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E. B. MEYROWITZ

The name of Meyrowitz is always associated with the best in optical goods, but the average physician, even though he may have long dealt with the house, may not know how extensive its line of goods is. This information often comes when one finds that he can obtain nowhere else just the thing he wants in the very big line of things now classified under optical goods.

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I had used Antiphlogistine before in pneumonia and in sprains, so when I found that by mistake this had been sent I decided to try it. I covered the entire injured parts with a thick layer of Antiphlogistine (applied cold), put absorbent cotton over all, and after bandaging loosely to keep things in place, took the patient home in my buggy. When I first saw him his face was contorted with pain and he could not suppress the groans that the agony wrung from him, but, as I covered more and more of the burnt surface with the dressing, I could see the expression of pain leaving his face. I gave him some medicine to relieve pain and when I called again that evening I found he had not touched the anodyne. I asked him why he had not touched his medicine. "Well, doctor," he said, "you told me to take that every two hours while I was in pain and I have not had any pain."

The next day I let him leave his room and in three days he was back at work. I did not touch the dressing for five days, and when I took it off the parts had healed entirely.

There are two important points in the use of Antiphlogistine. First: put it on thick, thick, thick, using it hot for internal inflammations and cold for burns and scalds. Second: never put cloth over the Antiphlogistine, except a thin layer of gauze, if necessary, but put absorbent cotton in thick layers over your first dressing. Don't try to remove it as long as it sticks to the skin for it will let go as soon as it has done its work. I have used this preparation (Antiphlogistine) frequently since then in severe burns and scalds and yet have to meet my first disappointment in its curative power.—H. B. Lee, M. D., Summerville, S. C.

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A GENERAL CONSIDERATION OF GALL-STONE DISEASE*

By W. D. FARRELL, M. D.
ABERDEEN, S. D.

Gall-stones may occasionally form in the gall-ducts with no involvement of the gall-bladder. It is probably true, however, that in most cases in which we have an accumulation of duct stones, without stones in the gall-bladder, the beginning was a stone from the gall-bladder becoming lodged in the common duct. Gall-stones occur three times as often in women as in men. Bacterial infection is one of the main factors in the production of gall-stones, and it is thought by many authorities that constipation, which is by far more common in women, may play an important part through infection back on the liver of the colon group of bacilli. It is also to be remembered that pregnancy throws an unusual amount of work upon the liver in caring for mother and child, and Bryant states that 90 per cent of women having gall-stones have borne children. Fully 50 per cent of gall-stone cases occur in patients over forty years of age, and cases in either sex under twenty-five are unusual.

The first important factor in the production of gall-stones is the relation between micro-organisms with the formation of calculi. Cholestrin, which is the most important constituent, is the direct result of the action of bacteria on the mucous membrane, and lime salts have the same origin.

The micro-organisms most common are of the colon group, including the typhoid bacillus. A great many cases of gall-stone diseases can be traced directly to typhoid fever.

The second prominent factor is the obstruction to free drainage, and this is usually the result of swelling of the mucous membrane produced by bacteria.

The third factor is the gall-stone diathesis or lithogenous catarrh.

As to how the infection reaches the gall-bladder there is a difference of opinion. Some authorities maintain that the infection has ascended from the duodenum, even though it has been shown that the duodenum in this region is usually nearly sterile. Others maintain that the infection occurs in the liver by way of the portal circulation.

Gall-stones may be single, but are usually multiple; and as many as 10,000 have been removed from a single case. Gall-stones are usually all formed at one time, though cases in which several crops have been produced have been reported, but these are rare.

The time of formation varies from a few days to several weeks. The gall-bladder becomes filled with a mucoid material, and in this small particles, which form the nuclei of the stones, may be seen; and the process advances, step by step, until the stone is complete.

The symptoms produced by gall-stones depend upon their location in the biliary tract, the virulence of the infection, and the amount of the obstruction.

The history is often the most valuable means of reaching a diagnosis. A patient may complain only of chronic dyspepsia and have perhaps some tenderness on deep pressure over the gall-blad-

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

der, but with these and an almost forgotten history of colic we have a clew to work upon. Careful history, even though only a few external signs are evident, will usually establish a diagnosis of gall-stone disease.

Jaundice, surgically speaking, is always obstructive and means that at some point there is an interference with drainage either from within the lumen of the duct by infection causing swelling of the mucosa or by calculi, tumors, or intestinal worms, or from without from tumors, local peritonitis, adhesions, or exudates, such as occur about a perforated duodenal or gastric ulcer.

The most important point to remember is that jaundice itself has nothing to do with gall-stones in the gall-bladder, and will not occur so long as the stones remain where they belong, and, if it does occur, it means either that an infection has descended from the gall-bladder through the cystic duct and has involved the common and hepatic ducts, or that the calculus has moved down into the large bile-ducts.

Jaundice, then, is a complicating symptom and means, whether or not there is gall-stones or infection in the gall-bladder, that there is also obstruction to the outflow of bile and that obstruction is outside the gall-bladder.

Stones in the gall-bladder accompanied by mild infection give rise to sudden colics, and these colics are usually high in the mid-line, radiating to both sides and upward. The pain comes on suddenly with no relation to diet, time of day, or exercise, quickly reaches its maximum, and lasts from a few minutes to several hours, and ends as abruptly as it began. The relief often is accompanied by vomiting. There is no elevation of temperature or increase in pulse, for the reason that the gall-bladder has few lymphatic vessels and no lymphatic glands, and therefore cannot absorb sufficient septic material to cause much bodily disturbance.

In these attacks there is no jaundice, the pain is midline, and the attacks may be months or even years apart; and when the time between attacks has lapsed to many months or years these patients will tell you all about what cured them, but the stones are still there and only need sufficient infection to swell the mucosa and the spasm is on.

Operations for simple gall-stone disease are very safe, cholecystostomy, the usual operation, having a mortality of less than .05 per cent.

The complications of gall-stone disease may be classified as, first, those in which the stone is impacted in the pelvis of the gall-bladder, and in these cases the attack begins in about the same manner as in simple gall-stone colic, but, instead of ending in a few hours, the pain is persistent and is accompanied by local tenderness and rigidity of the upper rectus. The pain slowly subsides, but the tenderness remains, and there is usually a clearly defined tumor formed by the distended gall-bladder. The end-result of this condition is the cystic gall-bladder filled with a clear fluid, but no bile.

If further infection takes place, an empyema develops upon this. There may be no further attacks of colic, the acute symptoms gradually subside, and the patient becomes a chronic dyspeptic.

In those cases in which the stone is forced into the cystic duct, there may be adhesions to the duodenum, with rupture into the gut or into the peritoneal cavity, with resulting peritonitis, or if the point of rupture is protected a localized abscess will form.

Stones in the cystic duct cause fewer symptoms, for the reason that the obstruction is seldom complete. The symptoms are not acute. There will be repeated attacks of colic from the movement of the stone in the duct, and there is persistent local tenderness. Impacted stones in the cystic duct will eventually give rise to either a cystic gall-bladder or an empyema.

The treatment of stone in the cystic duct is cholecystectomy, unless the stones can be removed without injury to the duct and if the gall-bladder contains bile, in which case a cholecystostomy will do.

GALL-STONES IN THE COMMON DUCT

These usually give rise to jaundice. The attacks of colic are not severe, but are frequent. The degree of jaundice is variable, but when the obstruction becomes complete jaundice remains. There are attacks of choleangitis with chills, fever and sweating. The temperature is high.

The common-duct stone may remain in place for several years and cause few symptoms, but usually there is dyspepsia with loss of flesh and appetite.

The symptoms are entirely those due to infection and obstruction, and these depend somewhat upon the location of the stone. Those lodged in the ampula produce the most marked jaundice, and those which move about, produce, by irritation, recurring attacks of choleangitis.

Common-duct stones are frequently discharged

into the bowel after gradual dilatation of the duct, and the cases we see in which the jaundice, pain, and local tenderness are suddenly relieved, have usually had this ending.

Stones in the common duct should be relieved by choledochotomy.

Hepatic stones are almost invariably accompanied by common-duct stones, and the stones have usually originated in the gall-bladder and entered the hepatic duct by way of the common duct.

It is sometimes impossible to completely empty the hepatic duct at the time of operation, but with an empty gall-bladder and free drainage the stones will generally come away in the course of a few days. The stones from the hepatic duct are commonly dark brown or black and without facets.

CHOLECYSTITIS WITHOUT THE PRESENCE OF GALL-STONES

This is a common condition and exists in acute, subacute, and chronic forms.

The acute form presents a virulent infection with thrombosis of the vessels. The mucous lining frequently, and occasionally the whole gall-bladder becomes gangrenous, and if perforation occurs in this form we probably have a general peritonitis. The bacteria present are usually those of the colon group, and in practically all cases streptococci are present.

In the subacute variety the inflammation does not extend beyond the mucous lining of the gall-bladder. The cavity becomes filled with bile and mucus that is thin and foul and has a fecal odor, and the bladder itself is very much distended, but the walls are not much thickened.

These cases sometimes give rise to marked symptoms. The infected contents, under pressure, are forced back into the deeper ducts, producing chills, high and irregular fever, and a moderate jaundice. Adhesions have formed about the fundus of the gall-bladder in a large percentage of these cases, and the real pathology will be uncovered only when the gall-bladder is opened and the contents of it and the condition of the ducts examined.

If the ducts are not involved cholecystectomy is the operation to be done, but if there is evidence of infection extending to the liver ducts, extensive drainage by cholecystostomy is indicated.

In the chronic cholecystitis the gall-bladder is filled with a dark, thick, turbid fluid. Adhesions between the peritoneal surface and adjacent structures are common. The inner surface of the gall-bladder presents a speckled appearance, due to the staining of the old erosions with bile-pigment.

As it is not possible to make a definite diagnosis of cholecystitis without stone, we should be careful to examine the pylorus, the right kidney, and the appendix before opening the gall-bladder. The operation of choice in this condition is cholecystectomy if there is no infection of the hepatic ducts, and cholecstostomy with prolonged drainage if there is evidence indicating duct-involvement.

I shall mention briefly what we may term secondary complications.

First, adhesions, which may limit the function of the gall-bladder or interfere with drainage. These are present in nearly all cases of gall-stone diseases, and really do not produce as many pathological symptoms as we should expect. The treatment is abdominal section, with removal of the gall-bladder and division of the bands.

Second, acute perforation of the gall-bladder, which is accompanied by the same symptoms as in rupture of any other abdominal organ. General peritonitis rapidly follows, and the diagnosis may not be made until the abdomen is opened, unless there is a very definite history or one has been familiar with the case. The treatment consists of removing the gall-bladder and establishing free drainage.

Third, fistulous openings, if existing between the gall-bladder or one of its ducts and a loop of intestine, will usually close spontaneously, but do occasionally cause symptoms of obstruction. Fistulæ to the body surface are quite common. The treatment of the intestinal fistula is to divide and close the opening with a purse-string suture. The gall-bladder should be removed.

Fourth, duct strictures commonly follow where injury to the duct-lining has been produced by a lodged stone. Strictures of the cystic duct, which are the most common, may be treated by removal of the gall-bladder. Strictures of the common duct are more serious and more rare. The drainage can be re-established by dividing the stricture and implanting the duct at a higher point on the duodenum or by direct anastomosis between the gall-bladder and the duodenum.

Pancreatic diseases, while very often a secondary complication of gall-stone diseases, will not be taken up in this paper.

SURGERY OF THE GALL-BLADDER AND DUCTS*

By Rollo C. Dugan, M. D.
EYOTA, MINN.

The subject of gall-bladder disease, first brought prominently before the American profession by that "Grand Old Man," H. Christian Fenger, in his classical studies of common-duct stones, has since been discussed by such eminent surgeons as Kocher, Moynihan, Mayo Robson, Mayo Brothers, Murphy, and others; still, in my opinion, the statement made by Mayo, in 1903, that the gall-tract had not received the attention it deserved from the surgeons, is still true, but perhaps to a lesser extent. Medical treatment of this condition has now passed into deserved oblivion, no one having the temerity now to claim, at least in the presence of medical men, that there is any medicine of value except perhaps in the matter of prophylaxis, and that is as yet pretty much beyond us.

That gall-stones are the end-result of an infection of the gall-tract is now well recognized, but how to prevent this infection is not so clear. Surgeons in the past have been perhaps a little too apt to blame the general practitioner for not making a diagnosis earlier in every surgical condition, but, in candor, I must admit that in the cases of gall-bladder disease on which I have operated in persons who have been under my personal observation for fifteen or twenty years, the story has been about the same as in those that have come to me from other sources. I have not been able, except in one or two cases that have had typhoid, to decide when the infection took place that resulted in the gall-stones unless possibly la grippe was the first offender, creating a condition of lessened resistance to the colon bacillus, the probable immediate criminal.

The diagnosis of a typical gall-stone colic or obstruction of the common duct is so easy that the veriest tyro in medicine should make no mistake. But the case of latent stones and stones pocketed in the cystic duct, not entirely closing the same, is, as Kipling would say, "another story."

That a large number of so-called dyspepsias are cases of latent gall-stones has been emphasized by both Murphy and Mayo. Complete obstruction of the common or cystic duct, as pointed out by Kocher, brings on urgent symptoms immediately, but latent stones or stones pocketed in the cystic duct may cause only vague uneasiness or simulate various stomach affections. And there is one particular place in the cystic duct very prone to harbor pocketed stones, i. e., the first one-fourth inch of the duct, particularly in women with a narrow costal arch and the liver well hid under the ribs. In these cases the duct frequently takes a sharp slant in the first portion, and a stone pocketed in this position is exceedingly hard to feel. As an illustration: Miss P. had considerable stomach trouble extending over a period of three or four years, which was diagnosed by a very competent man as latent gall-stones. Later she had a typical attack of acute appendicitis, for which she was referred to me with the above history. The abdomen was opened by a right rectus incision of sufficient length to admit the whole hand, and, besides removing the appendix, the gall tract was, I thought, very carefully examined by palpation, but no stones were felt. The abdomen was closed, and the patient had no more trouble for about six months, when the stomach symptoms returned and were more severe and more markedly periodical. She returned to the hospital. An incision was made over the gall-bladder, the bowels well walled back, and after repeatedly palpating the whole gall-tract, I finally discovered quite a large stone in the first portion of the cystic duct nearly buried with liver tissue and with a channel in the duct that allowed the bile to pass except at such times as swelling temporarily closed it. Similar cases have come under our observation several times since.

Another class that furnish a fruitful field for mistakes are very small stones confined to the pelvis of the gall-bladder in the presence of large quantities of bile, especially if in a young patient with decided and serious appendix trouble to mask the symptoms. I remember very distinctly my chagrin in the case of a young girl operated on for appendicitis in which the gall-bladder was examined as a matter of routine. I failed to find any stones and was about to close the abdomen when my assistant said she thought she could feel a stone low down in the gall-bladder, which proved correct. On opening the gall-bladder a large number of fine soft stones were removed with much bile, which had so covered

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

the stones as to prevent my feeling them, the more sensitive finger of my assistant doing better. However, we felt somewhat less mortified on discovering that Kehr confesses to having missed stones in 4 per cent of his early cases and 2 per cent of his later ones.

In regard to age: Statistics mostly show 30 to 35 years as the usual age of beginning trouble, but Kelly reports a number of cases much younger. In one case he attributed the trouble to tight lacing, finding, on opening the abdomen, the gall-bladder squeezed far down with a sharp kink at the neck and the pelvis filled with thick, ropy bile and mucus.

Wendall reports a case in a child of 11 days, undoubtedly congenital, in which there were 90 stones found at autopsy. Still has collected ten cases in very young children; and as comparatively few young children come to the post-mortem table this would indicate a much larger proportion. However this may be, the consensus of opinion among surgeons, recently, seems to be that gall-bladder diseases occur in much younger persons than formerly supposed. I have seen in my small clinic three cases under 25 years of age in the last two years. Although the danger to life is not so imminent in gall-bladder disease as in appendicitis, the very serious sequelæ of neglected cases should cause us to give our patients a more grave prognosis than has been done in the past. In 100 cases of carcinoma of the gall-bladder Musser reports 69 with stones, and there was evidence that calculi had been present in the majority of the remainder. Mayo Robson, whose opinion is entitled to great respect, believes that stones are the most common cause of carcinoma in the ducts, although Erdes, Rolleston, and others claim the contrary. The cases of infection and impacted stones in the common duct with cholemia are not only very hard to operate upon, but they give a higher mortality by reason of the fact that the cholemia greatly reduces the resisting power and that the upper abdomen does not bear infection nearly as well as the lower one-half, especially the pelvis.

The danger of procrastination in these cases is very well illustrated by the following case:

Mr. L., aged 53 years, a very robust farmer, had typical gall-stone colic extending over a period of several years, and several times made partial arrangements to be operated on, but for one reason or other postponed it. He was finally seized with violent pain in the upper abdomen with temperature of 103°, and was immediately removed to the hospital. On opening the abdomen the gall-bladder was found ruptured, with a large infection in the upper abdomen, which, fortunately, was fairly well walled off, but in spite of this and of the fact that very free drainage was employed, he had a very narrow escape for his life, and in consequence of the large amount of drainage deemed necessary he was left with a bad hernia, the only one it has been my misfortune to have in the upper abdomen.

Any one who has not in his own experience realized the great difficulty attending operation on old and neglected cases of common-duct stone, has but to read the complicated technic described in cholodocho-enterostomy by Mayo, Kocher, and others.

Murphy has called attention to the increased mortality in cases of stone in the common duct with fever in comparison to the same condition with the stone confined to the gall-bladder, and he explains it by the fact that the duct is very much richer in lymphatics than the gall-bladder, thus increasing the constitutional poisoning.

In view of these very serious conditions in delayed cases, I am constrained to the opinion that we have not, in the past, sufficiently emphasized the danger of delay. In fact I think Murphy's famous dictum in regard to appendicitis is nearly, if not quite, as applicable here, namely, "the proper time to operate is just as soon as the diagnosis is made."

DISCUSSION

Dr. E. S. Judd (Rochester, Minn.): Personally I feel very much indebted to Dr. Dugan for his paper, and agree with him in believing that there is very little to be said in favor of the medical treatment of gall-stones. The condition is purely a surgical one at a stage of development when diagnosis can be made. Preceding the gall-stones there is usually a cholecystitis or inflammation in the gall-bladder. Many of these cases give a history which differs from gall-stone disease in that colic is not one of the symptoms. Constant pain in the region of the gall-bladder is more apt to occur. Upon opening the abdomen the gall-bladder will be found tense, and cannot be collapsed by ordinary pressure. Sometimes it requires two or three minutes of pressure before it collapses. Figuring that the cystic duct has a lumen of one-eighth of an inch, and the common duct a lumen of one-sixth of an inch, it takes several minutes to press the bile out. If this cannot be accomplished, a cholecystitis or inflammation of the gall-bladder may be suspected. If the gall-bladder cannot be compressed, it is the rule that it should be opened.

We have observed three different types of cholecystitis without stone. First the strawberry gall-bladder. In this type of cholecystitis the gall-bladder should be removed. If it is only drained the symptoms are apt to

return and persist until the gall-bladder is removed. The second type is the thick-walled gall-bladder containing thick tarry bile. It is well to drain such gall-bladders. The third type is a large thin-walled gall-bladder filled with foul-smelling bile. This condition responds well to treatment by drainage. We have recently observed cases in which a question of cholecystitis was doubtful. In these cases the gall-bladder is opened and a specimen of the wall of the gall-bladder removed large enough for microscopic examination. In many instances a distinct round-cell infiltration is found, which indicated cholecystitis.

The most dependable point in diagnosis is the enlargement of the lymphatic glands along the duct. This inflammation extends into the duct, as well as into the gall-bladder, and we find that if the glands are enlarged the case is much more apt to be one of cholecystitis.

Dr. A. E. Spalding (Luverne): As gall-bladder disease is a condition requiring surgical interference, the time has passed when the patient should be treated with phosphate of soda, olive oil, and the many other drugs so often used. An operation for the removal of gall-stones is very simple, providing it is done before the many complications take place resulting from the long courses of medical treatment, which is essentially a do-nothing treatment. There was a time when appendix cases were operated upon only as a last resort, but the general practitioner who does not refer these cases to the surgeon within twenty-four or forty-eight hours is not doing his duty. The same rule holds good in gall-bladder cases, not that they should be operated on within forty-eight hours, but that they should not be left for months and years, suffering untold agony and developing adhesions which make the operation a more serious matter. I can better illustrate this by reporting one of my recent cases.

Mrs. B. M., aged 51, entered the hospital on May 21st, last. She gave a history of having had stomach trouble, as she expressed it, during the summer of 1911, which consisted of eructations of gas and frequent vomiting, which became a daily occurrence. Her normal weight was 150 pounds, but it became reduced to 111 pounds. On December 22d she became jaundiced and had chills and fever, this condition lasting nearly four months. I could not elicit a history of gall-stone colic, she denying having any severe pain; and the jaundice had entirely disappeared when she came under my observation.

On May 22d an operation showed a contracted gall-bladder buried in a mass of adhesions covered firmly by the omentum. The gall-bladder was very much thickened, and upon opening it pus escaped and twenty good-sized gall-stones were removed. A purse-string suture was placed with difficulty owing to the fragile condition of the gall-bladder, a rubber tube inserted, and a gauze drain placed around the tube, as it was impossible to stitch the gall-bladder to the parietal peritoneum. Bile escaped freely the day following the operation, and continued till June 10th, when the wound closed.

Dr. A. W. Ide (Brainerd): I desire to mention a case of gall-stones which I had in a child four years and one month old. We operated on this case with a good result. The child had had typhoid fever, which ran a mild course about a year and a half previous to the attack of gall-stones. The child had quite a severe attack of abdominal colic, and we did not make a diagnosis of gall-stones primarily. We made a diagnosis of appendicitis. We operated and found gall-stone trouble. The gall-bladder was drained. The appendix was found not seriously diseased, but the gall-bladder was very much distended and could not be emptied on pressure. On opening the gall-bladder quite a large quantity of fine bile was removed.

In looking over the literature I have been unable to find a case that parallels this. I found two cases reported in patients under the age of ten years, operated upon for gall-stones, the youngest being five years of age.

Dr. Dugan (closing): The subject of gall-bladder disease is so extensive that one can cover only a small part of it in a short paper, and I am very glad indeed that Dr. Judd took up the matter of cholecystitis, which I passed over very lightly. It is an important subject, and I purposely did not mention the subject of the surgical technic in any way because that has been described by men very much better qualified and more competent than I am to do so, so that it would be an imposition upon you to take up your time in doing that. The main object of the paper was to emphasize what Dr. Spalding has called our attention to, namely, that the late conditions in gall-bladder disease are very serious and that it has been the custom of the general practitioner, and the surgeon to a considerable extent, to tell the patient who has gall-bladder trouble that it would be a good thing to be operated upon, but it is not absolutely necessary if the patient does not have frequent attacks. This is a mistake, because, when these patients do get serious trouble, it is very serious.

As to the age of these patients: As I said in my paper, three of the cases operated on were patients under twenty-five years of age, and two of them under twenty years. In that time I have seen as many as seven or eight cases later in life which gave distinct symptoms of gall-bladder trouble extending back at least into the second decade of life.

These cases of gall-stone trouble occur much more frequently in young patients than we used to suppose. Cases have been referred to a great many practitioners who, in making a diagnosis, did not consider gall-bladder disease, which is a better term than gall-bladder infection or gall-stones. They did not consider that the trouble could occur in patients thirty or thirty-five years of age, which I think is a mistake.

VACCINES AND VACCINE THERAPY*

By Henry L. Ulrich, M. D.
MINNEAPOLIS

The use of vaccines, we can safely say, is becoming more prevalent. In spite of this fact and in spite of the ever-increasing literature on the subject, the general principles underlying this form of therapy are still rather nebulous to the average practitioner, and in particular to the man who has not been able to keep up with the later facts and theories in immunity. Not until an entirely new generation of practitioners has taken our places will vaccine therapy come into its real position in medicine. I bring this out from a fund of large experience accumulated in four years of talking, preaching, and using the new doctrine. I say this because as yet fifty per cent of the men who talk of vaccines still allude to them as sera, which is evidence of an almost hopeless situation. There are especially two striking reasons for this. First, the busy practitioner has had no time to keep pace with the remarkable studies in immunity; and the shallow man has no way of comprehending them. And, second, which is perhaps the more powerful one, the use of antitoxin for seventeen years prior to the application of vaccines has completely overshadowed the more subtle methods of the latter. Men had learned that for the diphtheria toxins there was an antitoxin. That was simple enough for anyone. Yet the work involved in bringing out this comparatively simple truth has taken years of patient toil; and those acquainted with its history knew all along there were many factors in this simple antitoxin idea of which the man on the firing-line never dreamed. I am alluding to facts in immunity outside of the incident of protein sensitization (anaphylaxis) accompanying the use of a foreign serum, such as horse serum.

In a society presumably made up of a mixed group, I thought it wise to go over the field of vaccines and their use in a general way, thus perhaps giving a clearer conception of the underlying principles, some of the difficulties involved, and some of the results which this form of therapy can bring about.

To take up the underlying principles of vaccine therapy, it will be necessary to go over some of the facts of immunity. Without some knowledge of immunity the treatment of infectious diseases today is practically a barren effort, not without fiasco or perhaps tragedy. In all infections there is either local or general invasion of the body. In either case some foreign organism invades the human organism, and immediately there is a reaction on the part of the body to resist the invader. The physiological process which is called into play is grouped around a system called the immunizing mechanism. It has an identity just as much as any other process, such as digestion or rather nutrition, or the cardiovascular mechanism. If we once grasp this idea, we have taken the first receptive step in the comprehension of the problem before us. Now, it has been shown in the studies of immunity, that there are certain invariable types of reactions which take place when a foreign substance, alive or dead, enters the body. These can be more readily grasped by a study of the chart. (See chart on page 40.)

We see four great types of reactions illustrated. The names of some of the factors have become quite common in medical literature. It is essential today that one become familiar with their meaning, in order to grasp the trend of modern literature on infectious diseases. I might add any substance used to produce a reaction in this sense is called an *antigen*. Bacteria when used to produce antibacterial substances are rightly called antigens.

I will now go into the process of making vaccines.* You will see the mechanical side of this work is not difficult. Accuracy in standardization depends on honesty and experience. There is a deeper issue involved, however, in the making of vaccine which strikes at the practical use of vaccines and makes for a limitation of their use. I allude to the changes bacteria undergo when grown on artificial media. This, combined with the difference in virulence of bacteria, has made vaccines a puzzling adjunct to the armamentarium. Each case with its bacterium is a problem, and standard all by itself. You will readily see that it strikes a blow at a quick method, or the easy rule to learn, or at the extensive use of stock vaccines. The cause of

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

*A description of the process of making vaccines was given at the meetings where this paper was read. For the sake of brevity and the fact that any modern text-book on bacteriology will give the technic the process is omitted here.

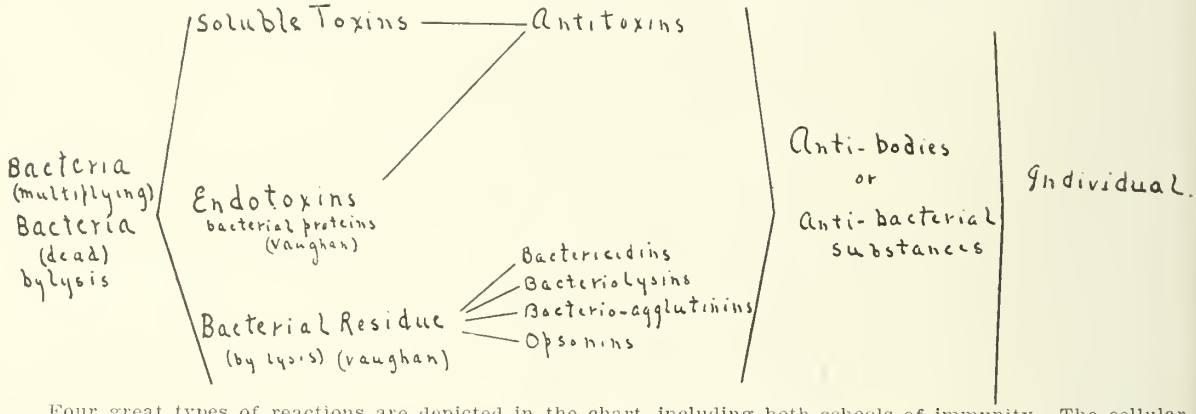
these difficulties is readily explained. We have no standard media as yet. There is a standard according to American Public Health Association, which, though not a real standard, is sufficient in a rough way for taxanomic purposes. A moment's thought will convince you that beef extract in one laboratory is not beef extract in another, and F. P. Gorham* has rightly pointed out that not until all the ingredients of media are absolute chemical products, can we hope for a standard media. In a biochemical sense this lack of standard makes for much greater changes than in a taxanomic sense. I feel that in this field of the work lies hidden the limitation so earnestly set forth by Horder† when he says, although he thinks that it lies in an entirely different portion of the field, "My opinion is that vaccine therapy is an effective method of combating an important factor in the struggle between the tissues and many infecting agents. I believe, however, that there are other factors in this struggle which are not touched by the use of vaccines, and that this limitation does exist, though at present it is quite undefined."

We have now arrived at the general understanding of immunity. We also understand how a vaccine is prepared. It would be well to pause at this point and take up some of the phenomena manifested in local and general infections.

Besides the biochemical substances which we discussed under the immunizing reactions, and which substances are invisible, there are reactions in infections which are quite visible and observable. I allude to the redness, brawny swelling, and abscess-formations at the local point of infection, the subjective symptoms of malaise, fever, and depression due to nervous disturbance. These, I say, can be watched, and some of them can be measured. They are of the utmost importance in judging of the extent of the infection and also the degree of toxicity. They are old and tried and familiar, and must no more be discarded than that the new be adopted in their place.

The new methods are merely supplementary, as well as complementary, to the old.

In local infections the pathological reaction must be considered and be thoroughly understood, in order to apply the principles of immunity correctly. It is not enough for us to inject bacteria into the body to produce antibodies, but it is necessary also to bring these antibodies, provided they have been manufactured, to the part. Now, this has been done in various ways. The oldest and most tried method is by means of massage and heat and cold. Massage and heat and cold produce circulatory changes which cause a change of the flow of lymph to the part. This lymph, if our vaccine therapy has been correct, will be laden with antibodies, and subsequent healing of the focus ought to take place. Bier's hyperemia, Beck's bismuth paste, the mechanical massage of irrigation, the various suction methods, all perform more or less the function of changing the circulatory conditions of the area involved. You have all performed these methods more or less intelligently, and consequently more or less successfully, as you have considered the fact of the increased circu-



Four great types of reactions are depicted in the chart, including both schools of immunity. The cellular, or French school, is represented by phagocytosis and illustrated by the opsonins; the humoral, or German school, is illustrated by Ehrlich's receptors of the first class, i. e., the antitoxins; Ehrlich's receptors of the second class, i. e., the precipitins and agglutinins; Ehrlich's receptors of the third class, such as the bactericidins and bacteriolysins.

*Science, March 8, 1900.
†Horder: **The Practitioner,** Vol. 85, p. 296, Sept., 1910.

lation to the part and one other item, the autoinoculation of the body by substances from the site itself. Wright has used a hypertonic solution to bring a flow of lymph to the part. This solution consists of .5 per cent sodium citrate and 2 to 4 per cent of sodium chloride. This by its hypertonicity supposedly brings a free flow of lymph by osmosis. The citrate in the solution throws down the calcium and thus prevents clotting. This is an excellent mixture for irrigating chronic sinuses and for wet dressings for infected wounds as well as carbuncles. It is quite evident the force here used is far more gentle and physiological than in the cupping and suction methods, which involve negative pressure over the area.

In the case of bacteriemias we are in a field at once most difficult, not only from the standpoint of immunization, but in our ability to judge how much intoxication is taking place. Here the body, by the very fact that invasion of the blood has occurred, gives evidence of low resistance. It seems almost a contradiction, a poor policy to pursue on our part, to load the body with an additional dose of toxins when its tissue already seemed bathed to saturation with them. While these cases are the most difficult to handle, it is nevertheless true that judicious stimulation of the immunizing mechanism has resulted in the most startling re-adjustments and complete remission of the invading organism usually to some local site or to complete sterilization of the body.

Apropos of this, we do not know as yet where antibodies are made. We do know that toxic bodies have selective action for certain cell groups, such as tetanus for nerve cells, diphtheria toxin for heart cells, and typhoid for heart and liver cells. It has been suggested that the subcutaneous tissue may be a great manufactory or even storehouse for antibodies. It is quite certain that the fixed cells are the seat of antibody manufacture, and that in all bacteriemias it is possible that by certain fixed cells, if stimulated from another direction and with certain component factors not possible from the blood and lymph stream so they will give off antibodies, the tide of invasion in the blood can be safely checked.

You will recall that in every invasion of the body by bacteria one of three things happens. There is complete restitution, or sterilization; partial restitution, or incomplete sterilization; or death supervenes. It is in the field of partial restitution that vaccine therapy has its most practical and logical application. As Wright has long ago pointed out, scarcely any one reaches a certain age without having had settled on him some bacterium in a semiparasitic way. I repeat, as practitioners you must see daily patients who are afflicted with some infectious agent attached in a parasitic or semiparasitic manner flaring up in recrudescences of minor or major importance, keeping the patient in more or less constant submergence by toxins, gradually undermining the nutrition with the subsequent demoralization of his economic and social life. The borderline cases of this type are hardly given enough attention by the physician. Many of these patients go on for years without consulting a physician or feeling the need to do so. Of the more obvious types are the chronic sinuses, chronic pharangitides, tonsillitides, bronchitides, serositides, prostatitides, in fact all chronic infectious processes which have supervened, following an acute attack, and which have settled in a tissue, be it skin, mucous membrane, or serous cavity. We are all familiar with the changes at a distance which some of these types of infections produce. The amyloid kidney, happily so rare with modern surgical technic, is a good example. The joint symptoms in visceroptosis, pointed out by Goldwaithe, Lane, and others; the joint symptoms of chronic tonsils; and, more recently, the rheumatic changes following chronic infections of the mouth, are others. Goadbye's results with vaccine therapy in the latter type of cases have been most interesting.

Then there is the large group of chronic infections following typhoid, diphtheria, colon, and the gonococcus, in which can be classed a lesser but very important group, the "carriers."

This suggests the fact that by far the most important and most striking value of vaccines has been in their prophylactic use. The statistics of antiplague, anticholera, antityphoid, and again more recently antiscarlet fever inocculations by means of streptococci are the most gratifying of all modern preventive measures. And yet such are the prejudice and conservatism of man that when the proposal of immunization is put to him he will instinctively repel it; although, on second thought, he must realize that every time he enters a crowded street-car, theatre, church, or public building, he has placed himself in an ideal receptive attitude to receive an inoculation of various pathogenic bacteria. I

have often speculated if this may not be one of our natural sources of attaining a biological equilibrium with our ever-present micro-enemies.

Outside of the prophylactic inoculation against bubonic plague, cholera, typhoid, and scarlet fever, the statistics of which run far into the hundreds of thousands, Stoner* has collected a series of 2,332 cases of vaccine therapy representing 67 different conditions. Of these 2,000, or 86 per cent, were cured or improved; 251, or 10 per cent, were not benefited; the remaining 79 cases, or 4 per cent, discontinued treatment or were lost. Three hundred six cases were general infections, and of these 274, or 88 per cent, were cured or improved, and 28, or about 9 per cent, were not benefited. This series does not include all cases treated since the beginning of vaccine therapy. They also do not signify very much except that the field of vaccine therapy is almost unlimited. Stoner emphasises the point of little significance. The lack of significance of these figures lies, not so much in the results, which are striking, as in the fact that, owing to the diverse conditions in which these results were achieved, no real value can be placed upon them.

I will add a few cases of my own. They are selected from a large group and are typical in that they are met daily.

CASES

CASE 1.—M. W., female, age 50, gives a history of repeated attacks of erysipelas in various parts of the body. In her last attack, some six months ago, the infection extended over the nose and laterally over the cheeks involving the eyelids. Her temperature was 104°. She received 20 m. m. streptococci isolated from a case of acute bronchitis. The temperature rose to 105° that night. The next morning it was 100°, and gradually in two days it returned to normal. Constitutional symptoms had disappeared. A second inoculation was given. The redness in the lower lids persisted. By means of pressure bandages it slowly disappeared. She was instructed to report for inoculation at the first sign of a new attack.

CASE 2.—M. H., female, age 57. Operated on for gall-stones. Drainage of gall-bladder was made. Two weeks after the operation her temperature flared up to 105° and for several weeks remained high with morning remissions. Outside of a nephritis and a swollen knee-joint, physical examination was negative. Blood-cultures gave staphylococcus aureus. Vaccine therapy was instituted. In four weeks her temperature came down gradually to normal. The patient's knee had improved after the first inoculation, and her general condition was better, however, owing to the high grade of anemia and marked nephritis, the patient never recovered from the shock of this infection. She lingered on in a febrile state for two months and died in uremia.

It is obvious in this case that vaccine therapy sterilized the blood-stream and tissues, but, owing to the nephritis, the case was doomed to a fatal issue.

CASE 3.—O. W., female, aged 45, patient gave a history of repeated attacks of variable degree of pain in the right hypochondrium and right upper pelvic abdomen. These attacks had persisted for ten years. Patient had recently been operated on for cancer of the right breast. When seen in her worst attack, fourteen months ago, there was, besides the pain, a temperature of 103°, intense headache, and a leucocytosis. A diagnosis of cholecystitis and possible chronic appendicitis was made. Patient positively refused operative procedure. A mixed vaccine of coli was given. A marked systemic reaction resulted, which made me think that our guess (colon infection of the gall-bladder) was quite correct. She received weekly inoculations of colon bacilli for six weeks. For one year there were no further symptoms, and the patient claimed that she had never felt so well in all her life. Only recently, after a winter's excess of social activity, the patient has had a mild attack of the same symptoms, which responded promptly to a few doses of colon vaccine.

In this case the isolation of an organism was not attempted because of the imperative need of doing something immediately. While this is not a good policy to follow, it illustrates the value of judicious reasoning and the results occasionally obtained when one proceeds along non-conventional lines.

CASE 4.—K. B., aged 45, physician. Patient had had trouble for years with periodic attacks of boils. In 1900, following an attack of boils, the left kidney became infected and was removed. There followed a long period of convalescence and rest after which the patient apparently lived in the best of health. In the spring of 1909 pustules and small boils appeared on the body, and continued until the fall of 1909, when he reported to me. There was much asthenia and much mental depression. He received for a period of two months consistent inoculations of Staphylococci were isolated from his pustules. cus taken at intervals was found to be rather low. Staphyolococci were isolated from his pustules. He seemed particularly sensitive to inoculations, and vaccines were given very cautiously. There was improvement from the start, and the mental and physical change was much greater. One or two pustules appeared in the following six months. There followed a period of two years of freedom from pustules, and the general health, including stamina, has been better than ever. Only the other day he telephoned me that he was getting tired again, and that now and then a pustule appeared.

He has asked me to institute another course of vaccines. It might be added that this physician has become an ardent advocate of vaccine therapy and uses it constantly in his practice in St. Paul.

CASE 5.—J. P., aged 35, a dentist. Patient has had attacks of tonsillitis as a child. From the age of 24 to 27, attacks came on nearly every month. The tonsils were removed at 27. There was no relief. At 28 an attack of pleurisy and at 29 an attack of

*Stoner: Jour. A. M. S., Vol. 141, 1911.

subacute pleurisy supervened. In the meanwhile cauterizing the lymph-nodes in the pharynx and the stump of the tonsils was tried. There was some benefit from this, for the patient had less severe attacks of pharyngitis. From 29 to 32, attacks proceeded monthly, practically putting him out of business, as he put it, for one-fourth of his time. During his 31st year an attack of pneumonia occurred. From his 32nd year up to now, some three years, he has been under my care. During one of his attacks of pharyngitis, in which there was extreme prostration and fever ranging to 103°, a pneumococcus was isolated. He received a vaccine made from this. In the three years he had had only three attacks, only one of which has been of any grade of severity.

Whenever the patient has felt tired out and felt that a sore throat was coming on, he has reported to me. Usually one inoculation has succeeded in aborting the attack. Never has his general health been so good. His weight has increased and his stamina has been remarkably improved.

This case is peculiar, in that the patient has a marked susceptibility to the pneumococcus and no doubt will have to continue his inoculations until his physiology changes or until his death.

You will note that four of these cases give histories of repeated attacks of the same symptom complex. They are illustrative of the remark made earlier, that some time in the career of nearly every individual an organism will attach itself and begin its career of parasitic or semiparasitic life. I assure you that it is not an incident in the career of an individual that the pneumococcus, staphylococcus, streptococcus, colon, typhoid, tubercle, or any other of the human scavengers should garner him into the house of death; far back of this fact lies his germ plasm and his eugenic chart pointing straight to such an eventful goal. It is not a fancy to say that every one of us enters this life with our little package of Fate, like the unborn children in Maeterlink's "Blue Bird," tucked under the arm. And in this package is stowed away a lowered resistance to some bacterium, which spells, in the language of the prophet, some bacterial invasion and subsequent defeat. From a large and extensive use of vaccines I can sum up my experience briefly:

Vaccine therapy is an indispensable adjunct to our modern methods.

Owing to our lack of standards, due, not only to media on which bacteria grow, but also to the difference in virulence particularly of the gonococcus, pneumococcus, pneumobacillus, typhoid, and colon bacillus, the question of dosage as well as results will be variable.

The judgment as to the use of vaccines in a given case should rest entirely on a complete adjudication of the clinical picture and a fair valuation from this whether or not the case is resisting infection to the highest physiological efficiency.

The recurrence of infection is one of the prime difficulties in advocating this method of treatment to the layman. We naturally cannot guarantee permanent immunity against any infectious process.

Another item, noticed particularly in staphylococcic infections, is the apparently sluggish response to the second or third series of inoculations. The question has been rightly put in this connection: Have we in some measures permanently affected the immunizing mechanism by artificial stimulation?

In my own experience the longest time I have had a case under observation is three years. This is Case 5 mentioned above. I have made three different vaccines from his throat at slight recrudescences, all pneumococcus, and each time his response has been quick and efficient.

The use of vaccines, like the use of any therapeutic measure, should proceed according to the study of the case. The delicacy in reactions is here more marked than that of the use of drugs, and therefore needs more attention and care than drug therapy.

To institute their use successfully the clinician should be in touch with the laboratory in which his vaccines are made.

The indiscriminate use of stock vaccines will be gradually replaced by the use of autogenous vaccines carefully planned and in consultation with the laboratory in which they are made.

DISCUSSION

Dr. Mortimer Herzberg (Vermillion): I do not know that I can discuss a paper of this character, and, moreover, I think Dr. Ulrich has covered all the points that might possibly be discussed.

I am particularly impressed with what might be called the recurrence of the enthusiasm about vaccine. The trouble is that a manufacturing concern will put out a vaccine which corresponds with the vaccine that the practitioner thinks he is getting. That is the great difficulty. I believe that there is a large majority of cases, perhaps, in which we are perfectly justified in the use of stock vaccine. I think Dr. Stoner, who has taken the matter up from the theoretical standpoint, is perfectly correct when he lays down this rule, that no stock vaccine should be used in any condition except that time will not permit the use of another vaccine. If we can give the human body, which we are trying to treat, a number of strains we must have some knowledge of how much the bacillus will vary, and when we try to produce it in the laboratory we should keep as close to the positive organism as we can.

There is another matter the doctor has brought out

in his paper, that is, in the history of his cases, and that is the class of cases that are treated with vaccine. If many of us have been discouraged by not getting results it is because we have tried vaccine therapy in every case that comes along. It has been my impression that each vaccine is more or less localized, as we have heard a number of cases cited in which the infection is rather chronic, that we would be most likely to get results if we can get enough organisms. I have made a few vaccines for a number of conditions. Some I have felt perfeetly safe in making, but they achieved no results, as my friend has stated. I had one case of empyema, which had been running for a number of months, and in a short time the woman had gained fifteen pounds in weight and is now nearly well.

Dr. Franklin O. Wright (Minneapolis): I have nothing theoretical to add to Dr. Ulrich's paper, but I desire to add a little clinical experience. I have had four or five cases in which I employed vaceine therapy, gonorrhea of long standing. I started one case on nitrate of silver and kept on until in three days I had given him four hundred million of Heiser vaccine, when his case cleared up. I have another man who has chronic inflammation of the bladder. I washed and drained his bladder, but he showed no improvement until I began to use the vaccine which Dr. Ulrich made, and in three months the man gained forty pounds in weight, and the interval of urinating increased from thirty minutes to four hours, and he now leads a useful life.

Another case that Dr. Herzberg brought to me for treatment of acne. Vaccine has no effect on acne except those cases where the pustules are deep-seated.

Dr. H. L. Ulrich (Essayist): In regard to acne: A recent paper in the *Jour. of the A. M. A.*, by an Indiana physician, shows marked results where this treatment was carried out by using vaccine of increased virulence due to passage through animals.

TONSILLITIS AND ADENOIDS IN THEIR RELATION TO OTHER DISEASES: A REVIEW OF TWO HUNDRED CASES

By Chas. F. Lewis, M. D.

AUSTIN, MINN.

Some two years ago I began the study of the diseases of the faucial tonsils and adenoids in their relation to infectious diseases and the general health.

During the past decade much has been accomplished in the field of nose and throat diseases and their treatment; many excellent contributions to the literature of medicine have been given us and many valuable papers have been presented in the various societies and published in our journals.

In my general practice I was often impressed with the fact that those suffering from hypertrophied or diseased tonsils or adenoids, especially children, were much more subject to infectious diseases and ill health than those with normal throats, and this was frequently noticed in children of the same family. I have frequently noted in epidemics of exanthemata that, if one of a family of children escaped, it was the one who had the better throat condition. It was these facts that induced me to take up this study.

I had some record cards made and have now carefully examined more than 200 throats of young adults, and recorded the findings in these records. I have not included in these examinations children under ten to twelve years of age, because there would yet be time for the exanthematous disease to occur or the general health to become impaired as a result of diseases of the tonsils or adenoids; nor those beyond thirty years of age, because of the unreliability of the history. I have endeavored to be thorough and have used the utmost care in obtaining data, and I believe the figures given below fairly indicate the evil results of the neglect of the throats of children.

I have divided these 200 cases into two classes only, those with normal throats and those having diseases of the tonsils or adenoids.

Disease	Normal Per cent.	Pathological Per cent.
Measles	82.	94.4
German measles	17.	42.
Scarlatina	11.	29.
Mumps	51.	69.
Diphtheria	11.	14.
Rheumatism	10.	33.3
Varicella	18.	74.
Pertussis	33.	71.
Otitis media	25.	80.
Otitis media-purulent	2.8	55.
Adenitis	2.8	50.
Impaired hearing	.0	34.
Cardiac disease	4.3	5.5
Pneumonia	7.1	14.
Impaired general health	4.3	50.
Anemic	4.3	34.

It will be noticed that, without exception, each disease occurred more frequently in the second series than in the first, in measles, the most common of the diseases of children, the predomi-

nance being nearly 15% greater; in German measles, two and one-half times greater, while diphtheria shows the least difference, in the two columns, of any of the infectious diseases.

As might have been expected from such a tabulation, rheumatism occurred in only 10% of those with normal throats, as compared with 33⅓% in those with pathological throats, the relationship between tonsillitis and rheumatism having been recognized for a quarter of a century.

Probably the most striking feature of these figures is the frequency of diseases of the middle ear. In 200 patients examined, I found none with impaired hearing the first series, and only 2.8% giving a history of suppurative disease of the ear. My cases show in the pathological-throat series, 34% of impaired hearing, 55% having at some time had suppurative otitis media, and otitis media as evidenced by earache in 80%.

Arslan[1] found in a series of 426 cases of adenoids that 59% had ear complications. Barth found 30% of adenoid patients had middle ear disease.[2] Wood found 42% of adenoid cases in a series of 149 cases had ear complications.[4] Kerriston found 90% had aural disease in 50 children who had adenoids. His cases included those showing objective, as well as subjective, symptoms of aural disease, while Murray found 31% of 600 cases, as revealed by subjective symptoms alone.[3]

Tonsillectomy and removal of adenoids in early cases of deafness usually give very prompt recovery; and often in cases of long standing, hearing is soon restored or greatly benefited where, of course, there is not serious pathological change in the middle or internal ear.

The sinus and nasal diseases are not to be overlooked, but how often these may result from infections primarily in the diseased tonsils or adenoids, we are unable to state at this time, but that they are secondary in many instances, is not questioned.

In my cases I have found none with impaired hearing in the normal-throat series, but 34% with impaired hearing in the pathological throat series. This would not signify that all deafness is due to diseases of the throat, but that such diseases are a very frequent factor in aural disease, and that children showing any degree of impairment of hearing should have their throats examined at once. Many times have parents come to me with a child complaining of impaired hearing in whom they had not observed any impediment of the respiration and in whom, following enucleation of diseased tonsils or adenoids, the hearing was quickly restored.

It would appear that the secondary diseases of the auditory organs are the most important, but we find that the infectious diseases of childhood are relatively more frequent.

The general health or nutrition was found to be below par in 50%. By this it is not to be understood that 50% are invalids, but that they do lack in development or robustness in this large per cent of cases.

Cervical adenitis.—Glands which have persisted for months or years, subject to acute exacerbation and liable to suppuration, quickly disappeared after the removal of the offending tonsil or adenoid.

That the tonsillar disease was a causative factor in many diseases has been considered for many years. For more than twenty years the causal relation of tonsillitis to articular rheumatism has been recognized by the profession, notice first being called to this fact by German authorities. Dr. Paul Schichold reports 70 cases of rheumatism in which pus was found in the tonsil. He has not only seen a few cases of articular rheumatism healed promptly and permanently by the removal of the tonsils, but he has seen recent cardiac complications disappear. He also says that tonsillar treatment has a favorable effect upon some kidney diseases. Only a complete removal is effective in these secondary diseases.

If we consider rheumatism as a sequela of tonsillitis, then we must also include those frequent complications of rheumatism, such as endocarditis, myocarditis, pericarditis, pleurisy, arthritis, and probably all forms of myositis.

As referred to above, nephritis may be due to tonsillar disease, i. e., chronic infected tonsils containing pus cavities. Dr. Loeb records[5] four cases of acute nephritis following acute follicular tonsillitis.

Bingham reports[6] one case of acute nephritis coming on ten days after the beginning of convalescence following follicular tonsillitis. A similar case is reported in *The Medical Council*, March, 1911. More frequently urinalyses would possibly reveal kidney affection in many such cases.

In the San Francisco City and County Hospital during an epidemic of diphtheria, twelve nurses having diseased tonsils contracted the disease,

while of nearly an equal number having had their tonsils removed, all escaped the disease.[7]

In each series the number of persons having cardiac disease is small; however, here we also find 25% more in the second series than in the first. This is as we might have anticipated, the cardiac complications following the infectious diseases.

Neuralgia and functional disturbances arising from tonsillar infections are frequently met with, as proven by the enucleation of the tonsils. This subject was nicely covered in a paper by Todd in the section of Laryngology and Otology at the St. Louis meeting of the A. M. A. in 1910, and published in the *Journal*, August 27, 1910, and is well worth the perusal of every physician, whether specializing or not. Every physician should recognize and be able to trace many of these remote or secondary diseases to their proper source, and I believe if we do recognize the remote possibility in these pathological throats, we shall render our patients better service in the future than has frequently been done in the past, by our counsel or treatment of such cases at a time before the mischief has been done.

The great importance of early recognition and the prompt and proper treatment of these diseases, are being more and more recognized daily.

The more careful consideration of the remote effects of diseases of the nose and throat and the wonderful improvement in technic, and surgical methods of treatment, have opened a new era in medicine for the relief of human suffering that cannot be excelled in any other branch of our great profession.

Ninety per cent of underweight patients suffering from chronic tonsillitis show immediate improvement and sometimes remarkable increase in weight following enucleation of the tonsils. I believe in the enucleation of the tonsils in the majority of cases; tonsillotomy may do in some; in fact, I have seen good and permanent results in properly selected cases.

For adenoids I like the Gottstein or similar curette method and special adenoid forceps, but all to be used with the finger as a guide. Remove them early in every case when indicated, and the results will be most gratifying to both your patients and yourselves.

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SOME NEW AND IMPORTANT TESTS FOR EXAMINATION OF MILK*

By E. Klaveness, M. D.

SIOUX FALLS, S. D.

About a couple of months ago I presented to our District Medical Society this very paper, and, really, I thought my lectureship on the chemistry of milk had come to an end when I had acquainted my home colleagues with this subject. Possibly many of you do know that my daily and customary work lies rather far away from chemistry as a whole and research work on milk examinations in particular, but our good Secretary, Dr. Parsons, must have thought differently when, some time ago, he urged me to consent to read this same paper to this body of medical men. I agreed to do so, mainly for the reason that every doctor, wherever he lives and practices, must of necessity be interested in knowing that he has a pure and wholesome milk delivered, either to his own family or the households of his patients. With these general remarks you will pardon me for deviating so far from my chosen speciality.

Granted that milk is our most important nutriment, and the exclusive or leading bill of fare for babies and infants, I do not here need to enlarge upon the necessity of always having a pure and wholesome article; but, inasmuch as this feature cannot be determined by a mere macroscopical glance at the milk specimen offered for sale, I thought it would be welcome news if through this paper I could acquaint you with some very important yet easily performed reactions whereby every physician can determine with a fair degree of certainty the qualities of the milk of which his young patients may partake.

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

The first reaction and the one most often used, refers to the action of hydrogen peroxide on milk. It had long been known and you have all frequently observed how blood or pus, when brought in contact with even a small quantity of peroxide of hydrogen, will split up the molecules of said reagent and, under a marked effervescence, will reduce these molecules to water and free oxygen. A similar reaction takes place when we use milk in place of blood or pus, and the liberated amount of gas (oxygen) can be measured and offers a valuable guide as to the purity of the milk. Some liberations of oxygen will always take place, even when the purest of milk is subjected to the action of peroxide of hydrogen; and this process, which briefly has been designated as *katalasis* (superoxydasis), is due to the presence of an oxidizing enzym that is always found in every milk and which is excreted from the living cells (leucocytes) and from certain bacteria (peptonizing bacteria; coli- and proteus-bacteria). This enzym, which has been called katalasis, possesses the faculty of splitting up the molecule of peroxide of hydrogen into its components, water and oxygen. Fifteen c. c. of clean milk coming from a sound cow will, under ordinary room temperature, when treated with five c. c. of a 1 per cent solution of hydrogen peroxide, cause a liberation of oxygen to the amount of at most 25 c. mm. in two hours. In ordinary good and cleanly handled commercial milk, at the very best, about 30 c. mm. of oxygen will be obtained during the same length of time. The richer in cells that the milk in question may be (colostrum milk, mastit-milk, etc.) the richer we shall find this milk to be in the amount of katalasis present. Likewise do we find more katalasis in milk from women than in cow's milk. When the milk is sterilized the katalasis has been destroyed, but should the same milk later on become infected, there will again take place a reformation of katalasis. Finally, I may mention that the heating of milk for thirty minutes to 130° to 150° will also destroy this milk enzym.

From the many examinations so far made by means of this test it has been found that the oxygen liberation will be the largest when there happens to be some pus or blood in the milk, r when the milk is a little old (36 to 48 hours or more), while the alcohol test does not yet give a positive reaction. If the milk be sour it will give, by the addition of peroxide of hydrogen, a very rapid and large oxygen liberation. The same will happen when the milk has become contaminated during or after the milking; likewise when it is collected in poorly cleansed milk—pails and, finally, in cases where a large number of katalasis-producing bacteria are found to be present in the milk. Milk from cows that have recently come in is rich in katalasis, particularly as long as it contains colostrum cells. The liberation of oxygen will, in these cases, take place quite rapidly and may measure more than 60 c. mm. in one-half hour. On the other hand, it has been observed that in the coldest winter months, and after a prolonged refrigeration of the milk, the katalasis is completely or partially destroyed. In septic fevers and in cases of retained placenta, or during diseases where the general well-feeling of the animal is disturbed, it has also been noticed that the amount of katalasis found in the milk is greater than under normal conditions.

Besides this oxidizing enzym of which I have hitherto spoken, it has also been ascertained that there is a reducing enzym which is found in fresh cow's milk and in small quantities in goat milk. This enzym is called reduktasis. It has not been found in woman's milk. The characteristic features of this reduktasis consist in its ability to decolorize methylene-blue, litmus, and indigo; also that it will transform sulphur to sulphide dihydrogen. Milk that is especially rich in bacteria and cells will decolorize in the course of a few minutes to one hour, but we may consider a specimen of milk to be a good commercial article if it does not bring about this decolorization before the end of three hours. This test is made by adding 0.5 c. c. of a methylene-blue solution to a test-tube containing 10 c. c. of milk, whereupon the mixture is shaken and a few drops of liquid paraffin added to it, after which the test-tube is placed either in a water-bath or in a thermostat at 98° to 100°.

By carrying out a number of these katalasis examinations in combination with the test for reduktasis, it was found on several occasions that even though the number of bacteria contained in the milk was so great that the milk would become decolorized after a few minutes, no oxygen liberation would take place on any larger scale than what is common for normal milk. From this fact we are enabled to draw the conclusion that there are quite a number of bacteria that do not contribute to the formation of katalasis. Any milk that will give an oxygen liberation of 35 c. mm. within two hours when

submitted to the katalasis test, should be further examined and more especially should be submitted to the leucocyte test; and as the easiest and speediest of these tests I would recommend the one used by Prof. Trommsdroff at Munich. He uses especially made test-glasses into which the milk is poured up to a certain mark indicated on the glass, whereupon the sample is submitted to centrifugation for a few minutes. From the color of the sediment one can infer whether it be pus, blood, casein, or dirt. The quantity can be directly read on the graduated scale as marked on the glass. Cows that will show in one liter of milk 10mg. of leucocytes may be considered to suffer from an inflammation of the udders. Ordinarily there will be found to exist a certain relationship between the number of leucocytes and streptococci present. By submitting the sediment in the leucocyte glass to a microscopical examination one will be enabled to ascertain the cause for the increased oxygen liberation found by the katalasis test. As a rule, one will, in every instance, be able to decide whether or not there be an inflammation of the udder or not, because one will find, besides a large number of leucocytes, different cells and bacteria, as well as fibrin threads, also streptococci, both long and short ones. The long chains of streptococci indicate a chronic disease of the udder, while the short ones point to a more acute disease. In cases where the milk comes from cows still carrying a retained placenta it has been found in the centrifuged sediment that a large number of cocci and diplococci are present, while in cases of diarrhea one will find a growth of coli bacteria in the culture media.

From the great number of milk examinations as reported in a paper written by the city veterinarian, Mr. Adolf Jacobson, of Christiania, and of which article this paper forms but a brief review, I shall cite a few cases for illustration in order to prove the value of these examinations.

"On the seventeenth day of April, 1909, a report of diarrhea and vomiting was furnished this office; two adults and three children were sick. Katalasis test of the milk showed more than 35 c. mm. oxygen liberation in one-half hour. Bacteriological examination gave growth of streptococci. Inspection of the dairy revealed two cows as suffering from inflammation of the udders."

On May 3, 1909, another report of diarrhea and vomiting was turned in. There were ten sick people. Katalasis examination of the milk gave more than 35 c. mm. oxygen liberation in two hours. The test for reduktasis gave no decolorization after three hours. Microscopically there were leucocytes and long chains of streptococci in great numbers. Dairy inspection disclosed four cows suffering from inflammation of the udders.

On January 27, 1909, a report of follicular angina was received. Three children who had all been drinking milk were sick. Bacteriological examination of the milk gave as result a light growth of staphylococci. Dairy inspection showed that one cow suffered from a light catarrh of the udder.

On June 11, 1909, another report of a follicular angina was received; four people were sick. Examination of the milk by katalasis, reduktasis, and leucocyte test gave negative results for all.

As stated before, I believe that these tests, which are so easy to apply to any individual case, are well worth knowing, and I trust that when you have seen the test in reality, such as I shall now proceed to do, you will agree with me and approve of this important advance in our knowledge, whereby we have become enabled to detect and to prevent the sale of an impure, unwholesome milk before too many people can have been taken down with a sickness.

PROPHYLAXIS AND TREATMENT OF ECLAMPSIA*

By R. T. La Vake, M. D.
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MINNEAPOLIS

My object in this paper is not to promulgate any startling new theory or procedure, but, rather, to sum up and emphasize the early symptoms and signs of toxemia culminating in eclampsia, and to give a routine method of prophylaxis and treatment. This dread complication should ever be in mind and one cannot follow too carefully a routine of prophylaxis and treatment to avoid errors of omission.

In the first place, we should become cognizant, by accurate history, of possible signs of toxemia in previous pregnancies—vomiting, edema, disturbance of vision, headaches, and abortions,—and we should instruct the patient to report at the advent of these symptoms.

From the practical standpoint, the index of the most value to the physician is the presence and percentage of albumin in the urine. It increases in amount in proportion to the toxemia in all but a very few cases. Thus one should insist on receiving frequent specimens. From the first to the seventh month, monthly examinations should be made; after that, fortnightly or weekly; and oftener throughout the pregnancy if symptoms demand.

Next to the albumin in importance stands the blood-pressure as an index to approaching eclampsia. Dr. Theodore Janeway observes that "a pressure of 160 mm. during late pregnancy should always be considered highly suspicious and lead to the same careful and repeated observation that the finding of albumin does." H. C. Bailey sums up the matter by saying that "from analysis of blood-pressure readings by many observers, 150 mm. may be taken as the danger limit and any pressure above this should demand vigorous investigation and treatment.

In the few cases where albumin remains low in toxemia, the blood-pressure is an invaluable aid. It is well to procure the blood-pressure when the patient first comes to you.

At the first sign of albumin the patient should be confined to bed, given mag. sulph., 1 oz., repeated each morning, and put on a milk diet with forced water, 8 oz., q. h., or some diuretic drink, such as "Imperial Drink,"—cream of tartar, 1 dram; sugar of milk, 4 drams; lemon juice, 1 oz.; sugar, 1 oz.; boiling water, 3 pints. A daily quantitative albumin estimte should be made and the blood-pressure taken twice a day. In a great many cases the toxemia will subside under this treatment, and the urine will return to normal. When such is the case, the patient can resume her accustomed life, strict advice being given against over-exertion and insistence laid upon plenty of rest and sleep and drinking at least six glasses of water a day; a daily bowel movement; and a lowered proteid diet, meat being used, at most, once a day.

In the event of increasing albumin and evident toxemia, do not immediately consider emptying the uterus. Do not empty the uterus except for the following indications: (1) onset of convulsions; (2) albumin over 80 per cent; and (3) albumin over 50 per cent after twenty-four hours' treatment. Many grave cases subside under appropriate treatment, and we escape injury to mother and child by hasty measures of delivery. If, in spite of our previous treatment, the toxemia increases, as evidenced by an increase in albumin, rise in blood-pressure, rapid pulse, restlessness and delirium, put the patient upon colon irrigation, nine gallons of water at 118° F., and allow from twenty minutes to a half-hour for administration. Alternating q. 8. h. with these irrigations give the patient hot packs lasting from one-half to one hour. Care must be taken to force fluids to prevent concentration of toxins in the blood.

For the rise in blood-pressure and rapid pulse give nitroglycerine, $\frac{1}{50}$ gr., q. 4. h., for blood-pressure over 150, with flu. ext. verat. m. 3, for pulse over 80, and m. 5 for pulse over 100. Assure quiet and rest by chloral hydrate, gr. 20, per rectum, q. 4. h. when necessary. If under this treatment for twenty-four hours the albumin remains above 50 per cent, induce labor.

In inducing labor do not use any rapid procedure. One has plenty of time if albumin is between 50 and 80 per cent, and convulsions have not supervened. The soft parts of the mother must be conserved. Induce labor by means of the Voorhees bag, and, after the bag is introduced, continue the previous treatment. In primipara an anesthetic is generally necessary to introduce the bag. Never use chloroform as an anesthetic, for it has been proved conclusively that

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chloroform anesthesia produces the very visceral lesions found in eclampsia. Always use ether in every operative procedure in a toxic woman. Under the anesthetic the cervix can be dilated with a glove stretcher dilator to admit a No. 2 bag. This bag will usually come through in from four to six hours, when the cervix will be dilated to admit three fingers, and the remaining dilatation can be done with the fingers in almost every case. Never under any circumstances use a mechanical dilator, such as the Bossi, because serious tears of the cervix extending into the body of the uterus may result, and rapid dilatation is a great shock to the patient.

At the advent of convulsions it is imperative that the uterus should be emptied as quickly as is consistent with the maintenance of the integrity of the soft parts of the mother. First consider the possibility of doing an accouchement forcé. If the cervix is dilated to admit two fingers and is fairly soft (usually we find that the cervix is soft and beginning to dilate in an effort on the part of nature to clear the uterus) and the child is not viable, justifying a craniotomy, try accouchement forcé. If the cervix is dilated to admit three fingers we are fairly sure of being able to do an accouchement forcé. Decision rests largely on one's opinion as to his ability to do a manual dilatation of the cervix. If impossible to do an accouchement forcé, put in a No. 2 Voorhees bag and keep on with the treatment. Traction may be exerted on the bag. Complete dilatation with the fingers when the bag comes through and complete delivery by version and breech extraction.

If the child is viable and convulsions have set in and the cervix is long and hard, vaginal Cesarean is indicated. Unless absolutely necessary to save a viable child or the life of the mother, the slow method of dilatation is preferable to the vaginal Cesarean because of the avoidance of scar-tissue in the cervix for future delivery.

Do not administer chloroform in convulsions. It is a great question whether it is possible to administer chloroform in time to stop a convulsion, and the danger of producing visceral lesions more than offsets the probabilities of benefits derived. Rely wholly on emptying the uterus, eliminative treatment, and chloral to limit the convulsions. The patient should be watched continually, and a wooden mouth-gag should ever be at hand to prevent injury to the tongue in convulsions. By no means restrain a patient, for restraint acts as a stimulus to excitement, convulsions, and subsequent exhaustion.

After delivery, give an intra-uterine douche of sterile normal salt solution at 120° F., and pack the uterus because of a tendency to oozing in toxemic cases. One might say, why not allow oozing and obtain results as claimed in phlebotomy? Patients seem to recuperate more rapidly when phlebotomy has not been performed.

After delivery the eclamptic treatment should be continued, discontinuing the treatment as the urine, blood-pressure, pulse, and mental condition return to normal.

Just a word about the question of infant-feeding until the mother has recovered: Infants should be fed on modified milk, and the mother's breast should be massaged and the secretion expressed at regular nursing periods to insure continuation of lactation. Put the child at the breast as soon as the mother regains her normal condition.

In closing, let me emphasize two points: First, never administer chloroform to a toxic woman, and, secondly, do not empty a uterus hurriedly, but only on specific indications expressed above, after treatment has proved futile, and then empty it only as rapidly as is consistent with the integrity of the soft parts of the mother.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

THE EXPERIMENTAL PROOF OF THE IDENTITY OF BRILL'S DISEASE AND TYPHUS FEVER

By JOHN F. ANDERSON, M. D., AND JOSEPH GOLDBERGER, M. D.

WASHINGTON, D. C.

New York Medical Journal, May 11, 1912

The authors believe that the condition described by Brill as an "acute infectious disease of unknown origin," and since generally known as Brill's disease, is identical with typhus fever.

This belief is based upon the results obtained by performing a series of cross-immunity tests in monkeys. To both Mexican typhus and so-called "Brill's disease" the lower apes and the rhesus and caupuchin monkeys are ordinarily readily susceptible. In both a characteristic and similar febrile reaction is obtained when the animals are inoculated with the blood of infected human beings.

The authors found that seven rhesus monkeys which had recovered from an attack of "Brill's disease," were each rendered thereby immune to Mexican typhus. Conversely, ten animals immune, by reason of an attack, to typhus, were no longer susceptible to "Brill's disease."

"Brill's disease," according to these authors, is to be accepted as the mild and benign form of typhus fever and as such is endemic in most of the large cities of the United States and Canada.

The authors further show that in addition to the transmision of typhus by the body louse, as reported by Nicolle, Comte, and Conseil, in 1909, the disease is most probably conveyed by the head louse as well. This goes far to explain why typhus fever, as is generally known, is so peculiarly a disease of the "great unwashed."

E. T. F. RICHARDS.

RADIOLOGICAL DIAGNOSIS OF ULCER OF DUODENUM

By MARTIN HAUDEK, Vienna

Until within the last ten years, internists ranking with Nothnagel and Dieulafoy considered the diagnosis of ulcer of the duodenum as doubtful, if not impossible. As late as 1907 Kausch said, "Up to the present time no positively diagnosed case of ulcer of the duodenum has come to operation, so far as I know all cases being diagnosed during operation." The work of Wilms, Melchoir, Seyfarth, and others confirmed by Moynihan, Mayo, and Robson, shows a distinct advance in the diagnosis of duodenal ulcer. Generally speaking, the diagnosis of ulcer of the duodenum depends chiefly upon the history. Periodical attacks of pain of boring character generally localized in the umbilical region, apparently independent of meal time, in fact occurring several hours thereafter, describe the clinical picture. The pain occurs often in the hunger state at night and may be allayed by the taking of food. Vomiting of food is very rare though a sour mucus is often vomited. Thus the course of the disease proceeds with occasional remissions for several years. This history is sufficient, according to Moynihan, to indicate an operation, for he holds that the history is everything—physical examination does not help in the least.

Ewald, Boas, Mendel, and Gunzburg do not consider the hunger pain as a positive symptom of duodenal ulcer, as they hold that simple hyperacidity, adhesions between the duodenum and gall-bladder, or arteriosclerosis may produce this symptom.

Objective symptoms of duodenal ulcer are not numerous. Occult blood in the stool is observed in one-third of all cases, but must be regarded as a late symptom. If the ulcer is localized on the anterior wall of the duodenum, rigidity of the right rectus muscle is observed. An indistinct point of sensitiveness to the right and above the navel may be present. Gunzburg found in duodenal ulcer a tympanitic zone between the gall-bladder region and the left lobe of the liver, which he attributes to the distention of the duodenum.

In this paper it is attempted to show to what extent the Roentgen method, which has become an indispensible aid in stomach diagnosis, can be depended upon in the diagnosis of ulcer of the duodenum.

A word or two relative to the physiology and pathology of the duodenum from the Roentgenologist's standpoint:

In most cases, immediately after the entrance of bismuth ingesta into the stomach, a shadow is seen in the duodenum, remaining there as long as there is residue in the stomach. This shadow, which varies in size from a hazelnut to a walnut, represents the filling of the pars superior duodeni, and is important in determining the position of the pylorus, since one can determine a lighter streak between the pylorus and this duodenal shadow.

Chilaiditti has studied ptosis of the duodenum and demonstrated a marked movability of the organ (up to ten centimeters). He finds the angulus duodenojejunalis most markedly fixed, being affected only by general ptosis. Holzknecht was first to observe before the x-ray screen an organic stenosis of the duodenum. He describes the following radiographic symptoms:

1. Filling of the duodenum above the stenosis so that the wall is visible in sharp outline.
2. Ineffectual peristalsis of the duodenum, which affects a change in form of the organ without moving the contents.
3. The reverse movement of bismuth residue above the stenosis.
4. The occurrence of a paralysis dilatation in advance of the stenosis.

Both retention and dilatation may affect the stomach, as well as the duodenum. A residue in the duodenum after six hours indicates a disturbance of motility. An

atonic disturbance of motility in the duodenum may cause a moderate accumulation of food-contents in the pars inferior. This is seen especially when there is an insufficiency of the pylorus on account of the excessive passage of the stomach-contents. This residue, however, does not resist the action of peristalsis.

To summarize, the following radiological signs are enumerated:

1. Retention of food-content in the duodenum, with evidence of slight stenosis.
2. As a rule there is only a small bismuth residue, which occurs in relation to a point of sensitiveness. These sensitive points may be manually moved about with the duodenum.
3. Slight hypomotility on the part of the stomach.

In certain cases of ulcer, all signs may be absent and the gastric motility may be normal. Hence, that lesion is not to be ruled out in case of normal Roentgen findings.

Even when the entire symptom-complex is present, the *x*-ray is probably not of such positive diagnostic value as in ulcer of the stomach. Its value is great, however, in cases in which symptoms are referred to the stomach, and there is suspicion of carcinoma, pyloric stenosis, etc., the ray showing a normal stomach and a lesion of the duodenum. The history alone is not sufficient for the diagnosis of duodenal ulcer. In a large number of cases diagnosed radiologically and proven at operation, the same history was recorded in duodenal ulcer and ulcer of the lesser curvature.

Differentiation from pyloric ulcer is less difficult. This lesion is followed by organic stenosis, with vomiting of food and dilatation of the stomach, which is easily proven by older methods, as well as by the *x*-ray.

A differential diagnosis between cholelithiasis with pericholecystitis and duodenal ulcer is difficult. The history, especially with simultaneous hyperacidity, may be exactly the same. The *x*-ray alone may make the diagnosis.

There can be no doubt that simple hyperacidity and hypersecretion may be accompanied by marked hunger pains, occurring at night and followed by obstipation and other digestive disturbances. Just how often an ulcer of the duodenum or stomach may be behind these disturbances, must be shown by future investigations. Finally, the author thinks that he has been able to prove that the Roentgen method has a distinct place in the diagnosis of duodenal lesions. Certainly, its more general use will reduce the large number of diagnoses of neurasthenia.

To eliminate this "opportunist" diagnosis, and to substitute therefor a concrete disease picture is one of the great functions of gastric radiology.

FRANK S. BISSELL.

A CONTRIBUTION TO THE STUDY OF INFANTILE MORTALITY

By C. PAGET LAPAGE, M.D., M.R.C.P.

Reprinted from the *British Journal of Children's Diseases*, July 1910

Whilst the general death-rate is declining the infant death-rate is not doing so, and at the same time the birth-rate is decreasing. If we examine the ages at which infants die we find that the first trimester is by far the most fatal. Newman gives 49 per cent for the first trimester, 21 per cent in the second, and 30 per cent in the third and fourth. Infant mortality is increasing in the first trimester, while that of the second trimester is stationary. The death-rate among illegitimate children is twice that among legitimate children. The high rate goes with the densely populated and manufacturing districts, and, as Newman says, "All diseases of infancy are heavier in towns than in counties; but immaturity is twice as fatal, and epidemic diarrhea seven times as fatal in the towns."

Of the ante-natal influences, lead and alcohol are of great importance, but the occupation of women is the most potent cause, especially when the work takes the mothers from their homes. Housework does not seem to have the same influence as working either in a mill or in the factory or the fields.

Of the post-natal influences prematurity and immaturity are of great importance according to Newman. While other children's diseases are decreasing, prematurity, acute lung disease, and diarrheal diseases are increasing. As causes of death prematurity occurs most often in the first trimester, diarrhea in the second trimester, and pneumonia in the second half of the year or the last two trimesters.

The fatality from lung disease has increased, as well as that from diarrhea and prematurity. The increase from the diarrhea being probably due to the increase in artificial feeding.

Lapage's studies from the Manchester Children's Hospital Dispensary give the following figures for the past 30 years, including whooping-cough and measles:

	Under 6/12	6/12 to 2 yrs.	2-5 yrs.	5-14 yrs.	Total
'08-'09	772, or 38.2%	1,007, or 50.2%	152, or 7.6%	57, or 2.9%	1988
'98-'89	599, or 31.5%	996, or 52.4%	238, or 12.4%	67, or 3.5%	1900
'88-'79	769, or 33.3%	1,148, or 49.9%	284, or 12.2%	106, or 4.6%	2300

Excluding whooping-cough and measles, but still including congenital syphilis and diarrhea, the figures are as follows:

	Under six months	Six months to two yrs.	Average for 2d, 3d, and 4th semesters	Total
'08-'99	766, or 44.2%	970, or 55.8%	18.6%	1736
'98-'89	559, or 40 %	838, or 60 %	20 %	1397
'88-'79	699, or 45 %	846, or 55 %	18.3%	1536

These figures show how the infantile mortality falls in the early months of life, even when prematurity and immaturity are almost entirely excluded, and more so when epidemic diseases are excluded.

The figures from the Manchester Dispensary seem to show also that the wasting diseases cause by far the larger proportion of deaths in the first six months, and, what is more important, that this tendency has steadily increased during the last thirty years.

From the Manchester figures the following conclusions are drawn: (1) that epidemic diarrhea has increased; (2) bronchitis and pneumonia have shown a slight but steady decrease corresponding to the decrease in the number of deaths from measles and whooping-cough; and (3) the most important conclusions, that more infants are dying of gasto-intestinal disorders, apart from epidemic diarrhea, than was formerly the case.

The Manchester figures corroborate former ones showing that the death-rate of illegitimates is about twice as great as that in the legitimates. Infants whose fathers are out of work tend to be under weight, and the more so as they get older, the causes being either poor nutrition and defective breast milk of the mother, or the

inability of the parents to procure artificial food if that is necessary.

Experience shows over and over again that breast-feeding is by far the best for the infant, and that, unless skilled and constant supervision is obtainable, a baby should not be taken off breast-feeding unless there are insurmountable difficulties to its continuation. If the breast milk is insufficient it should be supplemented with other food.

With regard to diarrhea, experience shows that where 18.3 per cent of deaths are in breast-fed infants, 34.7 per cent are in mixed fed, and 46.8 per cent in artificially fed babies.

Another illustration of the importance of breast-feeding was found in the Paris siege, where, through the mothers being compelled to stay at home and look after their children, the infants were more healthy, and the infantile mortality was lower than before the siege. Just the same thing happened in Lancashire in the time of famine and during the American Civil War.

J. P. Sedgwick.

THE ACIDOSIS INDEX

By T. Stuart Hart, M.D.
NEW YORK

Achives of Internal Medicine, March, 1911

For the exact quantitative measurement of the degree of acidosis due to acetone bodies, four serviceable methods exist.

Stadelman's method depends upon the quantitative estimation of the bases Na., K., Ca., Mg., and NH_3, and the inorganic acids. Excretion of organic acids is reflected in an increased excretion of bases, for they combine wth the bases.

Messinger's method modified by Huppert or Hart's method is a direct quantitative estimation of acetone and diacetic acid, and combined with the estimation of oxybutyric acid gives very exact results.

A third method depends on the quantitative polariscopic estimation of levorotary B. oxybutyric acid.

The fourth method depends upon the quantitative estimation of ammonia as an index to the degree of acidosis. The ammonia coefficient can be affected by the diet and by the therapeutic administration of alkalies. These factors must be eliminated to make the method serviceable.

Of the four methods, the quantitative estimation of ammonia would be the most serviceable for clinical use. The first two are too difficult and the third gives moderately accurate results only with careful technic.

Hart proposes a simple clinical method based on the Gerhardt reaction and depending upon the intensity of color developed by adding ferric chloride to the urine containing the acetone bodies. This method does not accurately estimate the quantitative excretion of acetone bodies, but affords substantial information in regard to the fluctuations of the total acidosis from day to day. The solutions necessary for the test are (1) the standard solution consisting of ethyl aceto-acetate 1 c.c., alcohol 25 c.c., and distilled water to 1,000 c.c.; (2) ferric chloride sol. consisting of 100 gms. ferric chloride dissolved in 100 c.c. of distilled water.

Take two test-tubes of equal caliber (one-half inch in diameter), put in one 10 c.c. of the standard solution and in the other 10 c.c. of the urine to be tested; add 1 c.c. of the ferric chloride solution to each, allow the tubes to stand for a couple of minutes to permit the color to develop fully, and then compare the color of the two test tubes when they are held between the eye and the sky. If the tube containing the standard solution is of a lighter shade than the urine mixture, dilute this with distilled water until the colors match, noting the volume to which it has been necessary to dilute the urine mixture. This gives the "acidosis index" per liter in accordance with the following schedule:

Volume of urine solution		Acidosis index per liter
10 c.c.	=	1.
15 c.c.	=	1.5
20 c.c.	=	2.
25 c.c.	=	2.5
40 c.c.	=	4.
100 c.c.	=	10.

(Intermediate volumes have proportionate index.)

To obtain the "acidosis index" proper, the "acidosis index per liter" is multiplied by the amount of urine, in liters, passed in the 24 hours. For example, a patient passes 3,200 c.c. of urine in 24 hours. When 10 c.c. of this was treated, as described above, it was found necessary to dilute this to 75 c.c. in order to match the standard. The "acidosis index per liter" was therefore 7.5 and the "acidosis index" would be 7.5 times 3.2 or 24.

The observations on which this study is based were made on 41 cases of acidosis varying in intensity from the mildest grades to those of extreme acid intoxication. The largest number of cases were diabetes, but included starvation, obesity, carcinoma of the stomach, febrila, and post-operative cases.

The acidosis index is of considerable value in those cases in which alkali is administered. The ammonia output greatly diminishes on alkali days, yet the "index" remains as great as, or even greater than, on non-alkali days. The acetone bodies are excreted combined with the alkali, thus lessening a need for large ammonia production. It is thus possible to tell, through the acidosis index, to what extent the ammonia has been replaced by the ingested alkali.

Hart found that the values obtained through the acidosis index run parallel with the degree of acidosis estimated by (a) the polariscopic method, (b) the ammonia output, (c) the chemical determination of acetone bodies.

(The "index" proved to be a better measure of acidosis than the polariscopic method. The method is undoubtedly a good simple clinical means of following the daily fluctuations of the organic acid excretion.)

F. W. Schlutz.

A DIAGNOSTIC TENDER SPOT IN PULMONARY TUBERCULOSIS

By Stevens T. Harris, M. D., M. R. C., U. S. Army,
HIGHLAND, N. C.

The Journal of the American Medical Sciences, June 8, 1912

By palpating the tip of the superior angle of the scapula at the insertion of the levator anguli scapulæ, and riding over it with more or less inward pressure, Harris finds constant tenderness over affected lungs. He considers it due either to degeneration of the muscle or to a reflex of some of the spinal nerves.

E. J. Huenekens.

THE
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JANUARY 15, 1913

MEDICAL BILLS TO COME BEFORE THE MINNESOTA LEGISLATURE

A committee of the State Board of Health and the Legislative Committee of the State Medical Association, at two recent meetings, discussed the introduction into the legislature of bills pertaining to public health, and it is very necessary that the support of the entire medical profession be centered on the legislature, in order that these bills may become laws. Every bit of personal influence should be used from an educational standpoint, and every physician who is interested in the welfare of his community should make a personal plea to his senator and representative, in order that these bills may be understood and, further, to show the necessity of more extended public health work.

The first bill refers to district inspectors and asks that each of the nine congressional districts in the state be given a trained sanitarian, whose duty it shall be to look after his district, not only as to the work of a health officer, but as to that of school inspection as well. In some districts this may demand the services of more than one man. So far the bill calls for an appropriation of $45,000, which will cover the salaries and the travelling expenses of the nine inspectors. In this bill the whole-time inspector may receive a salary from $2,400 to $3,600 a year and his travelling expenses, which will take up from $1,000 to $1,400 per year. It is believed that the appropriation of $45,000 would be quite sufficient, and the first year would probably leave a surplus.

The second bill provides for local inspectors, and this calls for an appropriation of $20,000. The local inspector is supposed to be a whole-time man, also combining the duties of a health officer and a school inspector. The bill provides for the payment of his salary by the State Board of Health, the local board of education, and the municipality, thus making it a comparatively easy matter for towns of the second and third class to employ a competent man at a very low rate. This experiment has been worked out in one or two counties, and has showed the necessity and benefit of a local inspector in towns of the above classes.

The third bill provides for the control of water and sewage, and is an excellent bill, as it protects municipalities, towns, and villages from the possibility of contaminated streams and water supplies, and also provides for the scientific construction of simple, inexpensive, sewage systems. This bill was introduced two years ago, and would have passed had it not been that it was on the delayed calendar and suffered defeat from inattention.

The fourth bill is for an appropriation for the State Board of Health. Heretofore the legislative committees of this Board and the State Association have asked for separate appropriations for separate divisions of the Board of Health; and the result has been somewhat disappointing, particularly as the legislature and the people generally do not appreciate the importance of vital statistics. As a consequence the State Board of Health has for the past two years carried a deficit in this department, and the general fund has suffered a depletion to keep up the department.

For the past two years the State Board of Health has had approximately $67,000 a year to take care of the general fund, the vital statistics department, to provide for the care of communicable diseases, the sanitary engineering department, the general and branch laboratories of the State, and the Pasteur Institute. Some of these department funds have been sufficient, while others have run short and have had to be made up by other departments. The combined legislative committees of this year ask for the lump

sum of $100,000, which it is believed will carry the work of the Board.

Again, THE JOURNAL-LANCET asks that its readers rally to the support of these public health measures. This does not mean lobbying, but educational work.

The problem is really not a medical problem at all, but is a work for the public at large to care for; and the sooner the people realize this, the more promptly will our appropriations come in.

SEWAGE POLLUTION OF THE MISSISSIPPI

The question of the pollution of the Mississippi River must inevitably come up for general consideration. This fact is emphasized by the complaint of many residents on the river bank on the east side of the Mississippi in Minneapolis. Their claim is that the great Oak Street sewer, which is about eight feet in diameter, is constructed on a rather peculiar angle. There are two drops of the sewer near its terminus above the river, and it practicaly empties into a basin, which permits the accumulation of refuse and waste-products from oil-mills and factories, as well as the general sewage from the southeast side of the city. This matter decomposes under favorable circumstances and gives rise to disagreeable odors, which can be obviated only by the extension of the sewer into the main channel of the river. Eventually all of the trunk sewers will have to be constructed in this manner.

The new dam, which is to be constructed between Ft. Snelling and Minneapolis, may be a great source of danger at times when the water is low and the current is quiet, particularly if the trunk sewers are permitted to remain in their present constructive form. The erection of the dam will cause a backing-up of the stream and a lessened flow of sewage. This will not only affect the city of Minneapolis, but will indirectly affect the city of St. Paul unless their sewer system is carried into the main channel of the river.

It has been pretty well accepted that running water will sufficiently clarify the ordinary sewage from a city of moderate size, like either of the Twin Cities, but if these cities continue to grow, the danger of the future is one to be considered. This calls up the whole subject of the pollution of the Mississippi River; and while the state is yet young, and the cities and towns along the banks of the river are still comparatively small, it would seem wise for the authorities to demand that the pollution of the river should be minimized as far as possible.

The people of St. Paul are complaining now of "floaters" that are found around the baths on Harriet Island. This is enough to discourage bathing in the river, particularly in the vicinity of a large city.

TWO NEW SURGICAL REMEDIES

Dr. Alexis Carrel, of the Rockefeller Institute, has come out with some statements that are rather startling: namely, that surgical wounds, if treated with a serum, would heal by first intention in one day, and that fractures of bones, if injected with a serum of thyroid or other ductless glands, would heal within four days.

This suggestion, coming from an investigator of Dr. Carrel's reputation, may mean much to the surgeon when the experiments have been completed. If it were possible to save the fracture the need of all of the weeks of repair, the possible deformities, and an indeterminate period on crutches or in splints, the dread of surgical operations in many cases would soon pass away. All this, however, is more or less speculative, and yet it has the elements of a scientific suggestion which is not unreliable when one considers the tremendous advance made by the investigations of research men.

The other suggestion comes from Dr. Darsonval, and is abstracted from a paper read before the Academy of Science in Berlin. Dr. Darsonval pointed out the application of great cold in the treatment of wounds of various kinds, and claims that it gives great advantages over the high temperatures of 200 to 300 degrees hitherto used. He further claims that these patients can be operated upon with temperatures as low as 252 degrees below zero.

The substance that he uses is a blend of alcohol and carbonic acetone, inclosed in a narrow silver tube surrounded by a double glass cylinder. This is the apparatus devised by Dr. Darsonval.

It is further claimed that this application does away with all dangers of infection, which is sometimes the outcome of the direct application of solidified carbonic acid gas. Evidently this application would do away with the usual anesthetic that is necessarily employed in the majority of surgical cases.

CORRESPONDENCE

THE VISITING NURSE AND TUBERCULOSIS

To the Editor:

Permit me to call attention to Dr. Hynes' abstract of Dr. Hare's paper on "The Diagnosis of Incipient Tuberculosis" from the *Medical Record* in the Dec. 15th Journal-Lancet, and in particular to the following summary of the paper:

"The main point that the author makes in this paper is, that one should not tell a person that he has tuberculosis until one is absolutely sure, inasmuch as many of the signs of tuberculosis cited above may be caused by many other conditions, and if a person is told that he has tuberculosis it handicaps him in business and leads to untold misery for the patient and his family."

We have seen that feature of the tuberculosis campaign graphically illustrated in this vicinity during the last few months. We have had a tuberculosis county nurse during the last few months—and apparently a good one at that—and yet I know of several families that have been made thoroughly miserable by her work, by her suggesting tuberculosis to persons who did not have it, but had, or had had, some of the minor lung troubles that Dr. Hare mentions. It is not a light or trivial matter to go up to a nervous mother and tell her that her darling boy or girl has the beginning of what is still considered among ordinary people a mortal disease. I know of three families in this county that are now chasing from one doctor's office to another to try to get rid of the suggestions that this nurse left with them. They will likely strike some quack before they are through who will find something, and likely relieve them of both their money and their health.

There are more frauds—medical frauds—perpetrated just now under the cover of incipient tuberculosis than of any one other fad, not appendicitis excepted. The least little, ordinary influenza bronchitis is at once diagnosed "incipient tuberculosis," and expensive and not altogether innocuous tuberculin treatments are inaugurated; and if the patient isn't sick he will be —for a good while at least.

The trouble is that our expert health crusaders get to be one-sided faddists and overlook other sides to the case, other features of this question.

Today the psychic side of disease or health is wholly ignored by the sanitarian. Let us have science, but let it be salted with a little tact, common sense, and humanity.

Christian Johnson.

Willmar, Minnesota, Jan. 7, 1913.

BOOK NOTICES

Home Hygiene and Prevention of Disease. By Norman E. Dittman. Duffield & Co., New York.

Writing a medical book for the home, like medical inspection in the public schools, requires even more common sense than medical knowledge, although a lack of the latter would be, and often is, most mischievous. Dr. Dittman has written an excellent work for the home, giving just such advice as a physician would give when consulted over the telephone. His work is not designed to supplant physicians, but to aid the sick and the injured when a physician cannot be had or is not urgently needed.

A book so sensibly written cannot fail to accomplish much good.

Its treatment of the various diseases that need to go to the physician early, in order to insure a cure, is admirable, and thus much suffering and possibly many deaths, would be prevented by the family in which the mother or father uses such knowledge as Dr. Dittman has placed within the reach of all.

Practical Medicine Series, 1912, Vol. 5, Obstetrics. Joseph B. De Lee, A. M., M. D., Editor. The Year Book Publishers, Chicago.

This volume of 229 pages is very much like the previous volumes of this series. The usual classification of material is followed. It gives a very good résumé of the literature on obstetrics. The editorial comments scattered through the work are often very much to the point. It is often valuable to have a definite personal opinion among so much impersonal advice.

The book is valuable for anyone who wishes a brief summary of the literature in this branch of medicine.

—Adair.

Internal Medicine. By David Bovaird, Jr., A. B., M. D., Assistant Professor of Clinical Medicine in the College of Physicians and Surgeons of Columbia University. Cloth, Price, $5.00. Pp. 618, with 116 illustrations. Philadelphia, J. B. Lippincott Company, 1912.

The number of text-books on various branches of the healing art is growing apace. With many of them the excuse for springing into existence is difficult to fathom, for they are for the most part clever compilations, clothed in somewhat different phraseology from their predecessors, but containing the same general principles devoid of any new facts substantiated by original research, reflecting simply the ideas of the author and destined to be soon relegated to the upper shelves where so many of their compatriots have long lain in dust-encrusted slumber. The recent volume on Internal Medicine by Dr. David Bovaird of Columbia University

is in my opinion in marked contrast to the general run of similar works in that it is concise, correct and thoroughly up to the minute and exhibits the qualities of the highly educated, thoroughly trained and keen observer who has had abundant material and opportunity always at hand and the acumen necesary to at once pick out the kernel unencumbered by the husk. Its terseness, to which no essentials are sacrificed, should recommend it to the general practitioner who is seeking "multum in parvo" and that in a hurry. Its chapters on digestive and circulatory diseases are especially well treated, but no article in the entire work suffers by comparison. Such books are always welcome. —QUINBY.

NEWS ITEMS

Dr. T. H. Dedolph has moved from Foreston to Milaca.

Dr. H. C. Stuhr has moved from Argyle to Minneapolis.

Dr. W. E. Richardson has moved from Heron Lake to Slayton.

Dr. N. C. Thimsen has moved from Hayfield to Blooming Prairie.

Dr. Phillip Stangl, a recent graduate of Rush, has located at St. Cloud.

Dr. A. J. Gillette, of St. Paul, has gone to Europe, to visit the hospitals.

Dr. L. G. Smith of Buffalo, has become associated with Dr. C. M. Johnson of Montevideo.

The new N. P. Hospital at Glendive, Montana, cost $125,000 and will accommodate sixty patients.

Dr. T. W. Welsh, of Roundup, Montana, has gone to Europe for a year's special work, mainly at Vienna.

Dr. J. S. Lalande, of Fargo, N. D., will take up the practice of the late Dr. Wm. Kennedy at Olga, N. D.

Dr. E. G. Sasse, now at Bear Creek, Montana, will return to Lidgerwood, N. D., where he formerly practiced.

Dr. C. B. Powell has given up practice at Madison and has gone east to do eye, ear, nose and throat work.

Dr. R. J. Morrisey has purchased a half interest in the Watertown (S. D.) Hospital from Dr. R. F. Campbell.

Dr. C. D. Whipple, of Minneapolis, has gone to Europe for several months' special work, in Vienna, Berlin, and London.

"Dr." G. G. Wood, chiropractic, who was tried at Minot last month for practicing without a license, was found not guilty.

Dr. C. E. Dutton was elected health commissioner of Minneapolis last week, succeeding Dr. P. M. Hall, who has held the office twelve years.

The graduate nurses of South Dakota will seek protection against non-graduates in the form of a law recognizing their professional standing.

Dr. T. C. Harris of Cando, N. D., has been appointed by Gov. Burke a member of the board of trustees of the North Dakota State Tuberculosis Sanitarium.

A new class for nurses begins at the University Hospital on Feb. 1st. Women who are graduates of first-grade high schools and between the ages of 25 to 33 are eligible.

Dr. A. B. Ancker, of the City and County Hospital, St. Paul, will have served the city 30 years on August 13th, and no one can gainsay that his long service is based upon efficiency.

Dr. H. G. Harris has opened his new hospital at Wilmot, S. D. The Commercial hotel building was remodelled for a hospital building, and was equipped with modern hospital appliances.

Five hundred cases of Radam's Microbe Killer have been seized in Minneapolis by government officials because of the false claim made by its distributers that it will cure leprosy, yellow fever, etc.

Several chiropractics have been arrested at Fargo by the North Dakota State Board of Medical Examiners for practicing without a license. The case will be carried to the supreme court of the state.

The Tri-County Medical Association of North Dakota met at New Rockford last month. A resolution was passed in favor of locating at New Rockford the new hospital the Methodists are to build in that state.

The Camp Release District Medical Society, comprising Renville, Yellow Medicine, Lac qui Parle, and Sibley counties, will hold its annual meeting in Minneapolis on January 23d, in the rooms of the Hennepin County Medical Society.

The new Minnewaska hospital at Starbuck has been opened. The new building is thoroughly modern in construction and equipment, and cost about $20,000, most of which amount was contributed by citizens of Starbuck and by the farmers of the neighborhood.

Dr. F. A. Drake, of Lanesboro, has sold his practice and moved to Spokane, Wash. Dr. Drake has practiced at Lanesboro for nearly twenty years, and leaves to seek less arduous work. Dr. Gustav C. Hoff, formerly of Zumbrota, succeeds Dr. Drake.

At the annual meeting of the Hennepin County Medical Society, held last week, the following were elected officers for 1913: President, Dr. H. H. Kimball; vice-president, Dr. Geo. D. Haggard; delegates, Drs. A. S. Hamilton, H. B. Sweetser, C. A. Reed and H. L. Staples.

Mr. Clarence H. Johnston, of St. Paul, has been selected architect of the new tuberculosis building for the City and County Hospital, St. Paul. The building will cost nearly $100,000, and it is gratifying that an architect of high standing in his profession has been chosen to design it.

The Winona County Society held its annual meeting at Winona on Jan. 7th. In the absence of the essayists, the election of officers was taken up and resulted as follows: President, Dr. Oswald Leicht; vice-president, Dr. J. L. Lynch; secretary, Dr. H. F. McGaughey; treasurer, Dr. L. H. Munger; delegate, Dr. W. F. C. Heise; alternate, Dr. L. H. Munger.

The annual report of the Minnesota State Hospital for Crippled and Deformed Children has just been issued. It shows that 758 children were admitted to the Hospital in 1912, and of these 385 were cured. The industrial school at Phalen Park, in Ramsey County, which is conducted by the Hospital, has been eminently successful. Dr. Arthur J. Gillette, of St. Paul, has been the chief of staff since the Hospital was organized, and has given unstintedly of his time and talents to the work.

The annual meeting of the Watertown District Medical Society of South Dakota was held at Watertown last month. Dr. H. J. O'Bryan read an interesting paper on "Extradural Injection by Sacral Puncture in Genito-urinary Neurosis." The president appointed the following committee on public health and education: Drs. H. M. Freeburg and H. C. Parsons, of Watertown, and Dr. R. C. Hart, of Hazel. The following were elected officers for the current year: President, Dr. J. B. Vaughn, Castlewood; vice-president, Dr. H. A. Tarbell, Watertown; secretary and treasurer, Dr. S. B. Dickinson, Watertown; censor, Dr. C. S. O'Toole, Vienna.

Dr. George Simmons' editor of the *Journal of the A. M. A.*, Drs. W. J. Mayo and Louis Wilson, of Rochester; Dr. W. J. Farlin, of Sparta, Wis.; Dr. F. J. Lutz, of St. Louis; and Mr. W. C. Braun, business manager of the A. M. A., were in Minneapolis last week to confer with Drs. Frank C. Todd, C. H. Bradley, and A. C. Mann, chairmen of committees, on matters pertaining to the forthcoming annual meeting of the Association. It seems to be the opinion of all the visitors that the facilities for the meeting furnished by the State University will be the best in the history of the Association, and that the meeting on the whole and from every standpoint will be probably the best yet held.

PHYSICIAN WANTED

Excellent opening for competent physician. No doctor now in town. For particulars, write Secretary Commercial Club, DeGraff, Minn.

ASSISTANT WANTED

Young physician with some hospital experience wanted at once in general and hospital practice in Minnesota. Prefer Scandinavian and single. Must be graduate of good school. Salary and maintenance. Give full particulars in first letter. Address O. N., care of this office.

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I desire to buy a practice in Minnesota. Will take real estate that requires no more than $1,000 initial payment. Address B. M., care of this office.

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Modern, steam-heated offices. Suitable for physicians and dentists. Corner of Bloomington and Franklin. Rent very reasonable. See janitor, or telephone, Tri-State, Harriet 149.

PRACTICE FOR SALE

A practice bringing in from three to five thousand dollars a year in pleasant locality. Good hospital accommodations; city of 2,000 people; good farming community, and good pay. Doctor wishes to leave on account of health. Will give his practice if physician will buy his house and lots at a reasonable price. An excellent location for some good physician. Address R. S., care of this office.

PRACTICE FOR SALE

North Dakota practice offered; runs $9,500 a year. Successor can do as well or better. Cleared about $40,000 in last nine years. Requires $3,000 to handle this deal. Address, Dr. J. S. Davies, Granville, N. D.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF OCTOBER, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	3			1												
Alexandria	2,681	3,001	3		1													
Anoka	3,769	3,972	7													2		
Austin	5,474	6,960	5	1														
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	4													1		1
Benson	1,525	1,677	2															
Blue Earth	2,900	2,319	5			1										1		
Brainerd	7,524	8,526	9			1					1				1	1		
Breckenridge	1,282	1,840	0															
Canby	1,100	1,528	3													1		
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	0															
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	7			1	1								2			2
Crookston	5,359	7,559	10		1									1		1		2
Dawson	962	1,318	0															
Detroit	2,060	2,807	2															1
Duluth	52,968	78,466	88	7	2	4									4	6	1	12
East Grand Forks	2,077	2,533	2	1														
Ely	3,572	3,572	4				1	1										1
Eveleth	2,752	7,036	4	1														
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	3															
Fergus Falls	6,072	6,887	9	1														1
Glencoe	1,788	1,788	2				1											
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	1	1														
Hutchinson	2,495	2,368	1		1													
International Falls		1,487	2															
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	4			1												
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	6		1										1			
Luverne	2,223	2,540	4															
Madison	1,336	1,811	0															
Mankato	10,559	10,365	15			2										1		
Marshall	2,088	2,152	2													1		
Melrose	2,591	2,591	4	1											1			1
Minneapolis	202,718	301,408	256	22	2	26	4				1			2	11	26	2	17
Montevideo	2,146	3,056	1												1			
Montgomery	979	1,267	3															
Moorhead	3,730	4,840	7	1		1										1		2
Morris	1,934	1,685	2	1														
New Prague	1,228	1,554	*															
New Ulm	5,403	5,648	2	1		1												
Northfield	3,210	3,215	4													1		
Ortonville	1,247	1,774	3													1		
Owatonna	5,561	5,658	6	1											1	1		
Pipestone	2,536	2,475	4													1		
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	11	1											2	2		1
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	23			3										3		
Rushford	1,100	1,011	2															
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	8			1										1		1
St. James	2,102	2,102	3															
St. Paul	163,632	214,744	199	11	5	11	3					1		5	7	12	1	15
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	3															
Sleepy Eye	2,046	2,247	0															
South St. Paul	2,322	4,510	4															1
Staples	1,504	2,558	3												1	1		
Stillwater	12,318	10,198	11			1								1		1		
Thief River Falls	1,819	3,174	4												2			1
Tower	1,111	1,111	0															
Tracy	1,911	1,826	1			1												
Two Harbors	3,278	4,990	4													1		
Virginia	2,962	10,473	8		1	2									1			
Wabasha	2,622	2,622	*															
Warren	1,276	1,613	1											1				
Waseca	3,103	3,054	1															
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	1													1		
Willmar	3,409	4,135	6	2	1													
Winona	19,714	18,583	12	1										1		1		
Winthrop	813	1,043	0															
Worthington	2,386	2,385	4	1														

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian			1															
Aitkin	1,258	1,112	0															
Akeley	1,719	1,638	0															
Appleton			0															
Belle Plaine	1,184	1,221	0															
Biwabik	1,121	1,204	0															
Bovey		2,690	1															
Browns Valley		1,377	3															
Buffalo	721	1,058	2															
Caledonia	1,040	1,227	1															
Cass Lake	1,175	1,372	3															
Chisholm	546	2,011	14			1									5			5
Coleraine		7,684	2															1
Delano		1,613	0															
Farmington	967	1,031	1															1
Fosston	733	1,024	1													1		
Frazee	864	1,055	2															1
Glenwood	1,000	1,645	2													1		
Grand Rapids	1,116	2,161	*															
Hibbing	1,428	2,239	5	1		1									1	1		1
Jackson	2,481	8,832	0															
Janesville	1,756	1,907	1															
Kenyon	1,254	1,173	0															
Lake Crystal	1,202	1,237	1															
Litchfield	1,215	1,038	5	1														
Long Prairie	2,280	2,333	0															
Madelia	1,385	1,250	0															
Milaca	1,272	1,273	0															
Mountain Lake	1,204	1,102	0															
Nashwauk	959	1,081	3								1			1				
North Mankato		2,080	1															
North St. Paul	939	1,279	1													1		
Osakis	1,110	1,404	1															1
Park Rapids	917	1,013	2															
Pelican Rapids	1,313	1,850	0															
Perham	1,033	1,019	3												1			
Pine City	1,182	1,376	5	2		1												
Plainview	993	1,258	2													1		
Preston	1,038	1,175	0															
Princeton	1,278	1,193	0															
St. Louis Park	1,319	1,555	2	1														
Sandstone	1,325	1,743	0															
Sauk Rapids	1,189	1,818	2	1														
South Stillwater	1,391	1,745	0															
Springfield	1,422	1,343	2															
Spring Valley	1,511	1,482	0															
Wadena	1,770	1,817	0															
Wells	1,520	1,820	1															
West Minneapolis	2,017	1,755	2															
Wheaton	2,250	3,022	3													2		
White Bear Lake	1,132	1,300	2															
Windom	1,288	1,505	*															
Winnebago City	1,944	1,749	0															
Zumbrota	1,816	2,555	1															
	1,119	1,138																
STATE INSTITUTIONS																		
Anoka, Asylum			3	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			2															
Fergus Falls, Hospital for Insane			16	3		2								4		1		
Hastings, Asylum			0															
Minneapolis, Soldiers' Home			9	2		1										1		
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			3															
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			13	1														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			622	42	10	33	4				5	1	1	12	25	52	1	54
Total for state			1565	110	25	97	14	1	0	0	8	2	1	28	67	130	5	123

*No report received. Registrar not doing his duty.

111 stillbirths not included in above totals.

Prompt Assimilation

of nutritive material is of the greatest importance to convalescing patients, in all acute diseases or surgical operations.

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PUBLISHER'S DEPARTMENT

A NEW SPECIFIC IN RHEUMATISM

Melubrin acts as a practical specific in articular rheumatism, according to reports of some of the leading internists of Germany. Hoppe of the Berlin General City Hospital (*Berlin klin. Woch.*, 1912, No. 22) says that as an antirheumatic it stands close to salicylic acid in efficiency and is far more acceptable. Melubrin's absolute freedom from toxicity especially commends it to Hoppe's mind.

Muller of the Deaconness Hospital, Halle (*Vienna klin. Woch.*, 1912, No. 25), remarks on the particular value of Melubrin in acute and chronic rheumatic polyarthritis. He also commends it as an antipyretic, especially in pneumonia and sciatica, as its use is not attended with the disagreeable itching and perspiration caused by other antipyretics.

Samples of Melubrin will be sent physicians by the Farbwerke-Hoechst Company, 34 Beach Street, New York.

A POSSIBLE REVOLUTION IN THE TREATMENT OF INFECTIOUS DISEASE

Are existing methods of treating bacterial diseases to be fundamentally changed? Do the Phylacogens furnish the key to a new and enlightened therapy? Medical and other scientific men are beginning to ask these questions. Less than one year ago the name Phylacogen had not been injected into the language. Today you can scarcely pick up an American medical journal that does not contain some reference to the remarkable group of products for which it stands.

What are Phylacogens? Briefly, they are sterile aqueous solutions of metabolic substances generated by bacteria grown in artificial media. The name Phylacogen (from the Greek) means "phylaxin-producer"—literally, "a guard" and "to produce."

The initial Phylacogens were originated by Dr. A. F. Schafer in 1908, the method of preparation and technique of application being first presented to the San Joaquin Medical Society in Fresno, California, in October, 1910, and later to the San Francisco Medical Society (January 14, 1911). Subsequently the preparation of the Phylacogens was entrusted to Parke, Davis & Co., the work of manufacture being carried on at the company's biological laboratories in Detroit, Michigan.

The principle upon which the use of the Phylacogens is founded is the theory of multiple infections. Three facts are set forth as the basis of the new therapy:

1. Practically all acute and many chronic diseases are caused by the metabolic products of bacteria.

2. The human subject is the host of micro-organisms that are pathologically latent, but capable of setting up a disease process under certain conditions.

3. The growth of infecting micro-organisms can be arrested and their effects neutralized by products derived from their development in artificial culture media.

Five Phylacogens are now available: Rheumatism Phylacogen, Erysipelas Phylacogen, Gonorrhea Phylacogen, Pneumonia Phylacogen, and Mixed Phylacogen (the last named being applicable to the multiplicity of infections which may be said to be of questionable etiology). They are supplied in rubber-stoppered glass bulbs of 10 cc. capacity and are administered hypodermatically (subcutaneously or intravenously).

Many experienced physicians, representing both private and hospital practice, believe that in the Phylacogens we have the most efficient remedial agents yet devised for the treatment of acute and chronic infections.

NEW BIOLOGICAL LABORATORY

The handsome building illustrated herewith has recently been added to the group of biological laboratories of H. K. Mulford Company at Glenolden, Pa. The building is constructed from basement to roof of hollow tile and concrete, making it a fire-proof structure throughout, and is divided into departments, each department being complete in itself. The east end of the building is devoted to the handling of serum and globulin products. On the first floor bleedings are received from the bleeding-room, serum or plasma is removed from the clot or from the corpuscles, as the case may be, and the product stored immediately in cold-storage rooms belonging to this group.

When the serum or globulin has been tested and is

ready to be finished, it is delivered to the group of antitoxin and serum filling-rooms. The bulk stock is kept in cold-storage rooms connected with this group. Immediately adjoining the twenty filling-rooms is the labeling and packing room for serum and globulin products. This group also has its own cold-storage rooms.

Each of the twenty filling and serum rooms is supplied with washed and filtered air. The special apparatus used for this purpose is guaranteed to remove 98 per cent of suspended matter from the air supplied to these rooms. Not only is the air filtered, but its humidity and temperature are controlled, thus giving the employes the benefit of the best possible working conditions.

On each floor glass partitions between the halls and rooms permit the demonstration of the work to visitors without their entering the rooms themselves.

The laboratory floors are of esbestolith. The advantage of this material is that there are no seams or cracks, and it is impervious to fluids. It partakes more of the nature of wood than of cement, and because of a cushiony layer beneath the surface crust, is more acceptable to employes than cement floors.

The sterilizing rooms are in a separate building well supplied with ventilating skylights.

On the third floor are found the Lecture-Room, Library, and Museum.

The entire plant is arranged and managed under the

unit system. A separate building or group of buildings, or, in some cases, portions of larger buildings, are devoted to the preparation, standardization, packing, and shipping of each product. Each unit is in charge of scientific experts in their particular branch of bacteriology. Cold-storage rooms supplied with cold air from a central refrigeration-plant form part of each individual unit arrangement. This makes it possible to keep on hand a large stock of biologicals without danger of deterioration, so that the Company is prepared at all times to supply these products and to cope with the enormous demands often created by epidemics of the various infectious diseases.

ATOPHAN IS RAPIDLY GAINING GROUND—NOVATOPHAN, THE TASTELESS ATOPHAN

Soon after the discovery of the remarkable uric-acid-mobilizing, analgesic, and antipyretic properties of the 2-phenylquinolin-4-carboxylic acid (Atophan) and its derivatives, the prediction was made that Nicolaier's researches in this field would ultimately prove as great a boon to modern therapeutics as those which led up to the introduction of Urotropin by this eminent pharmacologist. Though barely eighteen months on the market, the preparation bids fair to fully realize these ambitious expectations.

The extensive pharmacologic and clinical studies to which Atophan has been submitted during this period, both by American and foreign investigators, have definitely demonstrated that it stimulates the uric acid excretion to a degree never before attained and possesses the ability to mobilize it from the blood and the tissues, to counteract its abnormal retention there, in brief, to regulate the uric acid metabolism selectively. Its superiority over the colchicum preparations and the salicylates lies in the far more reliable and prompt relief it affords from pain and inflammatory symptoms and in the entire absence of depressant and constipating by-effects or strong diaphoresis. The striking palliation, shortening or entire suppression of the attack under Atophan therapy, the rapid absorption of joint effusions and in many cases even the disappearance of the tophi, have gained for this preparation prompt recognition as the foremost remedy in acute gout.

In the chronic forms of gout, its employment during attack-free periods as a prophylactic to reduce the frequency and intensity of the attacks is proving of inestimable value. In articular rheumatism, too, and in a great many other painful inflammatory conditions in which perverted uric acid metabolism is frequently a contributory cause, Atophan is rapidly becoming the preferred constitutional medicinal treatment, such as in gonorrheal arthritis, neuritis, sciatica, neuralgia, lumbago, hemicrania, migraine, the non-specific types of iritis, episcleritis and otosclerosis, in eczema, pruritus, urticaria and other skin diseases pointing to excessive acidity of the blood; also in pyorrhea alveolaris, looseness of the teeth, erosions of the enamel, etc.

Among the more recent contributions to the literature of Atophan bearing out the above, are the following:

Dr. G. D. Kahlo, former medical director, French Lick Springs Hotel, French Lick, Ind.; professor of clinical medicine, Indiana University: "Atophan in the Treatment of Gout," paper read before the fifteenth annual meeting of the American Gastro-Enterological Association, at Atlantic City, June 3rd and 4th, 1912.

Drs. H. Bach and E. Strauss: "Contributions to Atophan Therapy," from Dr. E. Lampe's Clinic in Frankfort-on-the-Main, a private institution, specializing on metabolic diseases. (Muenchener Medizinische Wochenschrift, July 30th, 1912.)

Dr. A. Bendix: "The Treatment of Articular Rheumatism with Atophan," from Prof. Klemperer's Clinic, Staedt. Krankenhaus Moabit, Berlin (Therapie der Gegenwart, July, 1912).

Prof. Theodor Brugsch, one of the foremost living authorities on uric acid metabolism: "Diagnosis, Character and Treatment of Gout," referring extensively and very favorably to Atophan therapy. From the Second Medical University Clinic (Royal Charite), Berlin. (Berliner klinische Wochenschrift, August 19th, 1912.)

Prof. A. Schittenhelm and Dr. J. Schmid, the former an internationally known collaborator of Prof. Brugsch: "Gout and Its Therapy, with Special Consideration to Dietetics." (Sammlung zwangloser Abhandl. a. d. Geb. d. Verdauungs-u. Stoffwechsel-Krankheiten, Vol. 2, No. 7.)

Dr. P. Neukirch: "Treatment of Articular Rheumatism," from Prof. A. Fraenkel's Clinic, Staedt. Krankenhaus am Urban, Berlin. (Therapeutische Monatshefte, September, 1912.)

Dr. A. S. Woodwark: "The Treatment of Gout by Atophan." (St. Bartholomew's Hospital Journal, London, September, 1912).

Dr. Joseph Merzbach, Chief of Gastro-Intestinal Department, Jewish Hospital, Brooklyn, N. Y.: "Personal Experiences with Recent Drugs." (Long Island Medical Jonrnal, October, 1912.)

Novatophan, a quite recently introduced tasteless Atophan derivative, is 6-methyl-2-phenylquinolin-4-carboxylic acid-ethylester and identical with Atophan in pharmacologic action, indications and dosage. It will be found a welcome substitute in the few cases in which the slightly bitter taste of Atophan causes discomfort to patients.

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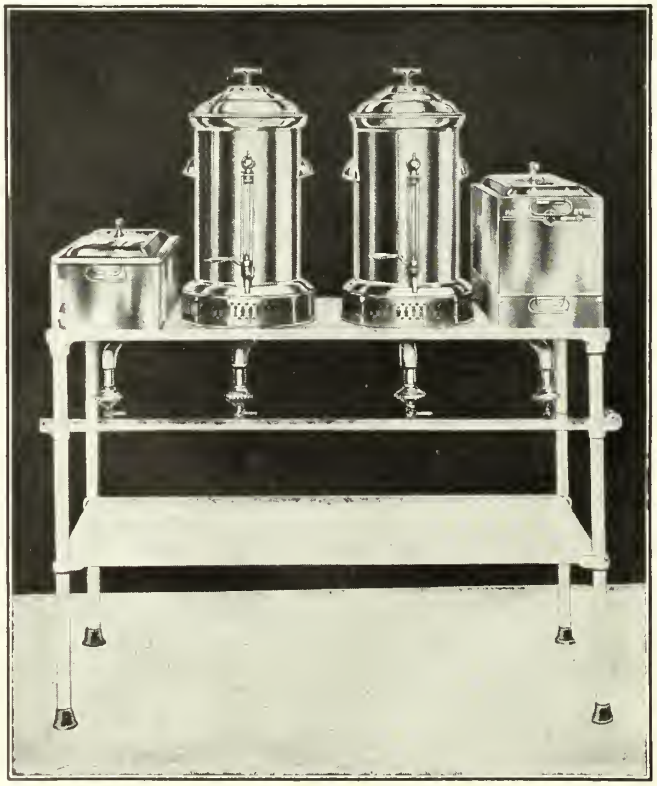

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Minnesota State Medical Association

DISTRICT AND COUNTY ROSTER

FEBRUARY, 1913

FIRST DISTRICT

COUNCILOR, C. E. DAMPIER.....Crookston

Clay-Becker County Medical Society

Regular meetings, last Monday in January, April, July, and October

Annual meeting in January

PRESIDENT

Carman, J. E.....Detroit

SECRETARY

Barton, E. R.....Frazee

Aborn, W. H.....Dilworth
Adkins, C. M.....Grygla
Awty, W. J. .....Moorhead
Breitenbach, O. C.....Frazee
Carman, J. B.....Detroit
Darrow, Daniel C.....Moorhead
Estrem, C. O.....Detroit
Frasier, G. W.....Minneapolis
Hagen, Ole J.....Moorhead
Haight, G. G. .....Audubon
Heimark, O. E.....Duluth
Hoit, Edward E.....Detroit
Humphrey, E. W.....Moorhead
Kaess, A. J.....Fargo, N. D.
Kirmse, G. W.....Frazee
Leach, W. D.....Callaway
Lowe, L. M.....Glyndon
Meighen, J. W.....Ulen
Ogden, Emma K.....Detroit
Patterson, C. H.....Barnesville
Richards, Polk.....White Earth
Simison, C. W.....Hawley
Smith, M. B. .....Lake Park
Thornby, H. J.....Barnesville
Verne, V. E.....Moorhead
Weeks, L. C.....Detroit

Park Region District and County Medical Society

Wilkin, Otter Tail, Douglas, and Grant Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Gilkinson, A. J. .....Osakis

SECRETARY

Randall, A. M.....Ashby

Baker, A. C.....Fergus Falls
Berthold, J. L.....Perham
Boyd, L. M.....Alexandria
Boysen, Peter....Pelican Rapids
Burnap, W. L. .....Pelican Rapids
Coleman, Fred B.....Carlos
Davis, L. A.....Dalton
Ellis, W. E.....Alexandria
Esser, John .....Perham
Freeborn, J. A.....Fergus Falls
Gosslee, A. F.....Deer Creek
Hand, W. R.....Elbow Lake
Haskell, A. D.....Alexandria
Haugan, O. M. .....Fergus Falls
Haugen, G. T.....Battle Lake
Hoffman, J.....Henning
Keene, L. M.....Alexandria
Kittelson, T. N.....Fergus Falls
Leibold, H. H.....Parker's Prairie
Lester, C. A.....Alexandria
Lyng, John A.....Fergus Falls
Meckstroth, C. W.....Brandon
Otto, H. C.....Vergas
Perry, Ralph St. J.....
.....Parkers Prairie
Powers, F. W.....Barrett
Rothnem, T. P.....Wendell
Ruud, M. B.....Alexandria
Serkland, J. C.....Rothsay
Sherping, O. Th.....Fergus Falls
Vigen, J. G.....Fergus Falls

Red River Valley Medical Society

Polk, Marshall, Kittson, Roseau, and Norman Counties

Regular meetings, February, May, August and November

Annual meeting in November

PRESIDENT

Hodgson, H. H.....Crookston

SECRETARY

Dryden, F. M.....Crookston

Anderson, W. S.....Warren
Arneson, Thomas ..Twin Valley
Bertelsen, O. L.....Crookston
Bowers, J. T.....Gully
Bratrud, Theodore .....Warren
Briggs, F. W.....Hendrum
Clair, J. B.....Oslo
Dahlquist, G. W.....Lancaster
Dampier, C. E.....Crookston
Dunlop, A. H.....Crookston
Gambell, F. H....Thief River Falls
Hamel, C. E.....McIntosh
Haugseth, Enoch....Twin Valley
Heimark, J. H.....Hawley
Hendrickson, J. F.....Fertile
Hieber, H. G...Thief River Falls
Hollands, Wm.....Fisher
Holte, H. .....Crookston
Howg, E. M.... ....Greenbush

Johnson, Geo. L.....Newfolden
Just, A. A.....Crookston
Kahala, Arthur.....Erskine
Kjelland, J. S.....Crookston
Lemieux, Israel...Red Lake Falls
Melby, O. F....Thief River Falls
Morley, G. A.....Crookston
Muir, J. B.....Roseau
Nelson, H. E.....Crookston
Norman, J. F.....Crookston
Ohnstad, J.....McIntosh
Olson, O. H.....Erskine
Randolph, Wilson.....Crookston
Risjord, J. N.....Fertile
Smith, H. W.....Crookston
Stuhr, H. C.....Argyle
Swanson, Cephas .....St. Hilaire
Swedenburg, A. W.....
.....Thief River Falls
Watson, N. M.....Red Lake Falls
Wattam, G. S.....Warren
Wilkinson, J. C. ....Red Lake Falls

West Central Minnesota Medical Society

Pope, Stevens, Traverse, and Big Stone Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Randall, B. M. .....Graceville

SECRETARY

Hulburd, H. L.....Morris

Arnold, S. E.....Clinton
Bolsta, Charles .....Ortonville
Caine, C. E... .....Morris
Campbell, C. M.....Starbuck
Cavanor, Frank T.....Wheaton
Christenson, C. R. .....Starbuck
Crossette, Geo. D.....Chokio
Eberlin, E. A. .....Glenwood
Elsey, J. R.....Glenwood
Ewing, C. F.....Wheaton
Fitzgerald, E. T.....Morris
Fjelstad, C. A.....Glenwood
Ghent, Charles H.....Graceville
Gibbon, L. L.....Lowry
Karn, B. R.....Ortonville
Karn, J.....Ortonville
Leland, J. T.....Herman
Leuty, Amos .....Morris
Linde, Herman .....Cyrus
Oliver, C. I.....Graceville
Ransom, M. L.....Hancock
Weir, J. D.....Beardsley
Whittemore, J. G. .....Donnelly

SECOND DISTRICT

COUNCILOR, J. G. MILLSPAUGH.....Little Falls

Aitkin County Medical Society

Regular meetings, first Monday in each month

Annual meeting in December

PRESIDENT

Graves, Carlton .....Aitkin

SECRETARY

Ratcliffe, J. J.....Aitkin

Caulin, T. J.....Palisade
Kelly, B. W.....Aitkin
Stewart, Alex.....Hill City

Upper Mississippi Medical Society

Beltrami, Cass, Crow Wing, Hubbard, Morrison, Todd, Wadena, and Itasca Counties

Regular meetings, first Tuesday in January, April, July, and October

Annual meeting in January

PRESIDENT

Reid, William .....Deer Wood

SECRETARY

Ide, A. W.....Brainerd

Allen, F. H.....Staples
Batcheller, Oliver T.....Brainerd
Beise, R. A.....Brainerd
Campbell, R. W.....Swanville
Christie, George R....Long Prairie
Corrigan, J. E.....Spooner
Coulter, Charles F.....Wadena
Courtney, Walter .....Brainerd
Desmond, M. A.....Akeley
Gilmore, R. T.....Bemidji
Hall, Elmer E.....Little Falls
Hart, A. B.....Pequot
Holst, C. F. .....Little Falls
Holst, J. B. .....Little Falls
Johnson, E. W.....Bemidji
Johnson, Oscar V.....Sebeka
Kenyon, Paul E.....Wadena
Knickerbocker, Frank H....Staples
Koch, J. C.....Blackduck
Lowthian, G. H.....Akeley
Marcum, E. H.....Bemidji
Miller, W. A.....New York Mills
Millspaugh, J. G.....Little Falls
Monahan, R. H.....Intl. Falls
Morell, W. N.....Verndale
Ohlinger, L. B.....Albert Lea
Parrott, B. W.....Long Prairie
Reimstad, C. S.....Brainerd
Roberts, L. M.....Little Falls
Sanborn, C. R.....Bemidji
Sewall, G. M.....Cuyuna
Smith, E. H.....Bemidji
Smith, Wm. H.....Cass Lake
Sykora, F. J.....Brainerd
Tanner, A. C.....McGregor
Thabes, J. A.....Brainerd
Van Valkenberg, B. F., Long Prairie
Watson, A. M.....Royalton
Wilcox, F. L.....Walker
Will, W. W.....Bertha

THIRD DISTRICT

COUNCILOR, J. L. ROTHROCK.....St. Paul

Ramsey County Medical Society

Regular meetings, last Monday of each month except July and August

Annual meeting in January

PRESIDENT

Meade, Charles J.....St. Paul

SECRETARY

Smith, C. E., Jr.....St. Paul

Abbott, E. J.....St. Paul
Abbott, J. S.....St. Paul
Abramovich, J. H.....St. Paul
Alexander, F. H.....St. Paul
Allen, Mason .....St. Paul
Ancker, A. B.....St. Paul
Armstrong, J. M.....St. Paul
Arzt, C. P.....St. Paul
Bacon, Knox.....St. Paul
Bacon, L. C.....St. Paul
Balcome, F. E.....St. Paul
Ball, C. R.....St. Paul
Barsness, Nellie.....St. Paul
Beadle, W. D.....St. Pa
Beaudoux, H. A.....St. Paul
Beckley, F. L. .....St. Paul
Benepe, L. M.....St. Paul
Bennion, P. H. .....St. Paul
Bettingen, J. W.....St. Paul
Bock, R. A.....St. Paul
Boeckmann, Eduard ....St. Paul
Boeckmann, Egll .....St. Paul
Bohland, E. H.....St. Paul
Bole, R. S.....St. Paul
Bray, E. R.....St. Paul
Brimhall, J. B.....St. Paul
Brooks, D. F.....St. Paul
Brown, E. I.....St. Paul
Brown, J. C.....St. Paul
Brown, S. E.....St. Paul
Buckley, E. W.....St. Paul
Burch, F. E.....St. Paul
Burns, R. M.....St. Paul
Caldwell, Knox.....St. Paul
Cameron, J. A.....St. Paul
Campbell, A. A.....St. Paul
Campbell, E. P.....St. Paul
Campbell, J. E.....South St. Paul
Cannon, C. M.....St. Paul
Cannon, Harry .....St. Paul
Carman, Chas. L.....St. Paul
Cavanaugh, J. O.....St. Paul
Chamberlin, J. W.....St. Paul
Charpentier, A. A.....St. Paul
Chatterton, C. C.....St. Paul
Christison, J. T.....St. Paul
Cole, Wallace.....St. Paul
Colvin, A. R.....St. Paul
Comstock, A. E.....St. Paul
Cook, Paul B.....St. Paul
Cuff, W. S.....St. Paul
Darling, J. B.....St. Paul

Daugherty, L. E.....St. Paul
Davis, Herbert .....St. Paul
Davis, William.....St. Paul
Dedolph, Karl.....St. Paul
Dennis, W. A.....St. Paul
Denny, C. F.....St. Paul
Dewar, J. Evan.....St. Paul
Dickson, T. H., Jr.....St. Paul
Dittman, Geo. C.....St. Paul
Dodge, W. M.....Farmington
Dohm, A. J.....St. Paul
Dohm, C. L.....St. Paul
Drake, Carl B.....St. Paul
Drake, Charles R.....St. Paul
Dunning, A. W.....St. Paul
Earl, George A.....St. Paul
Earl, R. O.....St. Paul
Ernest, Geo. C.....St. Paul
Eshelby, E. C.....St. Paul
Ferguson, J. C.....St. Paul
Flagg, S. D.....St. Paul
Fosness, E. G.....St. Paul
Foster, Burnside .....St. Paul
Francis, S. O.....White Bear
Freeman, Charles D.....St. Paul
Fullerton, W. S.....St. Paul
Fulton, John.....St. Paul
Gauger, E. C.....St. Paul
Geer, E. F.....St. Paul
Geist, Geo. A.....St. Paul
Ghent, M. M.....St. Paul
Gilfillan, J. S.....St. Paul
Gillette, A. J.....St. Paul
Goltz, E. V.....St. Paul
Gotham, C. M.....St. Paul
Gothe, L. W.....St. Paul
Gravelle, J. M. A.....St. Paul
Greene, Charles L.....St. Paul
Hall, A. R.....St. Paul
Hammes, E. M.....St. Paul
Hammond, J. F.....St. Paul
Harding, J. C.....St. Paul
Hawkins, V. J.....St. Paul
Heath, A. C.....St. Paul
Henderson, A.Powell River, B. C.
Hensel, Charles N.....St. Paul
Hesselgrave, S. S.....St. Paul
Hilger, A. W.....St. Paul
Hilger, D. D.....St. Paul
Hoff, Alfred .....St. Paul
Hoff, Peder A.....St. Paul
Holcomb, O. W.....St. Paul
Holl, P. M.....Minneapolis
Hubert, R. I.....St. Paul
Hunt, H. E. .....St. Paul
Ingerson, Carl A.....St. Paul
Johnson, Asa M.....St. Paul
Johnson, H. C.....St. Paul
Johnson, T. H.....St. Paul
Jones, D. C.....St. Paul
Kannary, E. L.....St. Paul
Kelly, John V.....St. Paul
Kelly, Paul H.....St. Paul
Kelly, W. D.....St. Paul
Kesting, Herman.....St. Paul
Kistler, A. S.....St. Paul
Lalonde, Edmond .....St. Paul
Lande, Wm. B.....St. Paul
Lankester, Howard .....St. Paul
Larsen, C. L.....St. Paul
Leahy, Bartholomew....St. Paul
Leavitt, Frederick E.....St. Paul
Leitch, Arch. .....St. Paul
Lerche, Wm.....St. Paul
Lewis, J. B.....St. Paul
Lewis, W. W.....St. Paul
Little, W. J. .....St. Paul
Lufkin, H. M.....St. Paul
Lundholm, E. M.....St. Paul
McCarthy, W. R.....St. Paul
McCloud, C. N.....St. Paul
McCord, E. W.....St. Paul
McDavitt, Thos.....St. Paul
McKeon, Owen.....St. Paul
McLaren, Jennette M.....St. Paul
MacLaren, A.....St. Paul
McNevin, C. F.....St. Paul
Markoe, J. C.....St. Paul
Meyerding, E. A.....St. Paul
Mitchell, Frederick J.....St. Paul
Mortensen, N. G.....St. Paul
Moynihan, T. J.....St. Paul
Murphy, E. F.....St. Paul
Nelson, J. C.....St. Paul
Nelson, L. A .....St. Paul
Nichols, A. E.....St. Paul
Nippert, H. T.....St. Paul
Norton, H. G..Crown King, Ariz.
O'Brien, H. J.....St. Paul
O'Connor, J. V.....St. Paul
O'Malley, W. P.....St. Paul
Odendahl, F. H.....St. Paul
Ogden, B. H.....St. Paul
Ohage, Justus.....St. Paul
Ohage, Justus, Jr.....St. Paul
Olander, J. E.....St. Paul
Olson, F. A.....St. Paul
Ostergren, E. W.....St. Paul
Perry, C. G.....St. Paul
Peterson, V. N.....St. Paul
Pine, A. A.....St. Paul
Pine, O. S.....Soldiers' Home
Platt, J. J.....St. Paul
Plondke, F. J.....St. Paul
Pool, Daniel .....St. Paul
Quinn, J. A.....St. Paul
Ramaley, L. .....St. Paul
Ramsey, W. R.....St. Paul
Richards, E. T. F.....St. Paul
Riggs, C. E.....St. Paul
Ritchie, H. P.....St. Paul
Ritchie, Parks .....St. Paul
Robinson, L. S. B.....St. Paul
Rogers, F. D.....St. Paul
Rogers, J. T.....St. Paul
Rothrock, J. L.....St. Paul
Rothschild, H. J.....St. Paul
Roy, Philemon .....St. Paul
Rutherford, W. C.....St. Paul
Savage, F. J.....St. Paul
Schoch, R. B. J.....St. Paul
Schuldt, F. C. .....St. Paul
Schwyzer, Arnold .....St. Paul
Senkler, Geo. E.....St. Paul
Sherper, M. S.....St. Paul
Shimonek, Anton .....St. Paul
Simon, B. F.....St. Paul
Skinner, H. O.....St. Paul
Sneve, Haldor .....St. Paul
Sohlberg, O. .....St. Paul
Staley, John C.....St. Paul
Sterner, E. G. .....St. Paul
Stierle, A., Jr.....St. Paul
Stolpestad, H. L.....St. Paul
Stumm, T. W.....St. Paul
Sweeney, Arthur .....St. Paul
Sweney, C. F.....St. Paul
Taylor, H. L.....St. Paul
Teisberg, C. B.....St. Paul
Turnacliff, D. D.....St. Paul
Van Slyke, Charles A....St. Paul
Voges, A. E.....St. Paul
Wald, Rudolph H.....Hastings
Walsh, E. F.....St. Paul
Warner, E. F.....St. Paul
Warren, E. L.....St. Paul
Welch, M. C.....St. Paul
Wheeler, E. C.....St. Paul
Whitacre, J. C.....St. Paul
Whitcomb, E. H.....St. Paul
White, J. S.....St. Paul
Whitney, A. W.....St. Paul
Williams, C.....St. Paul
Winnick, J. B.....St. Paul
Zander, C. H.....St. Paul
Zaun, J. J.....St. Paul
Zimmerman, H. B.....St. Paul

Washington County Medical Society

Regular meetings, second Tuesday in the odd-numbered months
Annual meeting in January

PRESIDENT
Kalinoff, D.....Stillwater
SECRETARY
Wells, E. E.....Stillwater

Bolevn, E. S.....Stillwater
Burfiend, G. H. .....Afton
Clark, T. C. .....Stillwater
Freligh, E. O'B.....Stillwater
Furber, W. W.....Cottage Grove
Haines, J. H.....Stillwater
Humphrey, W. R.....Stillwater
Landeen, F. G. .....Stillwater
Merrill, B. J.....Stillwater
Steen, A. H.....Cottage Grove
Stevens, F. A.....Lake Elmo

Chisago-Pine County Medical Society

Regular meetings, second Tuesday in January and July
Annual meeting in January

PRESIDENT
Zeien, Thos.....North Branch
SECRETARY
Anderson, C. A.....Rush City
Dredge, H. P.....Sandstone

Ehmke, W. C.....Willow River
Gray, C. E.....Rush City
Gunz, A. N.....Centre City
Lindberg, A. C.....North Branch
McEachern, W. A.....Sandstone
Murdock, H. G.....Taylor's Falls
Stowe, A. J.....Rush City
Tilton, A. J.....Harris
Werner, O. S.....Lindstrom
Wiseman, R. L.....Pine City

Central Minnesota District Medical Society

Mille Lacs, Isanti, Sherburne, and Kanabec Counties
Regular meetings in January, April, August and November
Annual meeting in January

PRESIDENT
Olsen, S. H.....Milaca
SECRETARY
Parsons, George E.....Elk River

Bloom, C. J.....Mora
Cooney, H. C.....Princeton
Garand, J. H.....Dayton
Nelson, M. S.....Mora
Roadman, Ira M.....Onamia
Schons, Edward .....Zimmerman
Shulean, Nellie.....Cambridge
Swennes, O. S.....Wahkon
Vrooman, F. E.....St. Francis

Carlton County Medical Society

Regular meetings, first Saturday in each month
The annual meeting in December

PRESIDENT
Watkins, S. O.....Carlton
SECRETARY
Barclay, A.....Cloquet

Dolan, W. G.....Cloquet
Fleming, James .....Cloquet
Gilbert, John D.....Carlton
Havens, J. G. W.....Cloquet
Raiter, Franklin.....Cloquet
Shannon, Sylvester.....Barnum
Walters, Franklin R..Moose Lake

St. Louis County Medical Society

St. Louis, Cook, Lake and Itasca Counties

Regular meetings, second Thursday of each month

Annual meeting in December

PRESIDENT

Taylor, C. W. .....Duluth

SECRETARY

Schulze, Albert G.....Duluth

Abbott, Wm. P.....Duluth
Adams, B. S.....Hibbing
Anderson, James C.....Duluth
Anderson, L. N.....Duluth
Ayers, G. T.....Ely
Barney, L. A.....Duluth
Barrett, Fred.....Gilbert
Barrows, R. E.....Eveleth
Blacklock, S. S.....Hibbing
Boyer, S. H.....Duluth
Braden, A. J.....Duluth
Bray, C. W.....Biwabik
Brooks, G. F.....Stevenson
Budd, J. D.....Two Harbors
Bullen, F. W.....Hibbing
Carstens, C. F.....Keewatin
Chapman, T. L.....Duluth
Cheney, E. L.....Duluth
Clark, C. H.....Duluth
Collins, Arthur N.....Duluth
Collins, Homer C.....Duluth
Conkey, C. D. .....Duluth
Coventry, W. A.....Duluth
Crowe, J. H.....Virginia
Daugherty, E. B.....Pine City
Davis, H. S.....Duluth
Deslauriers, A. A.....Duluth
Drenning, F. C.....Duluth
Ekblad, J. W.....Duluth
Eklund, J. J.....Duluth
Fahey, E. W.....Duluth
Farmer, J. C.....McKinley
Gillespie, N. H.....Duluth
Giroux, A. A.....Duluth
Graff, James R.....Duluth
Graham, David .....Duluth
Graham, R.....Duluth
Grawn, F. A. .....Duluth
Greeley, L. Q.....Duluth
Haney, C. L.....Duluth
Harwood, W. E.....Eveleth
Hempstead, B. E.....Duluth
Hirschfield, M. S.....Duluth
Jensen, T. J.....Duluth
Judson, W. E.....Duluth
Kean, N. D.....Coleraine
Keyes, C. R.....Duluth
Kraft, Peter .....Duluth
Kuth, J. R. .....Duluth
Laird, A. T.....Duluth
Lepak, Francis J.....Duluth
Lenont, C. B.....Virginia
Linneman, N. L.....Duluth
Lum. C. E.....Duluth
Lynam, F.....Duluth
McAuliffe, J. A.....Duluth
McCabe, W. F.....Duluth
McComb, C. F.....Duluth
McCoy, Mary K.....Duluth
McCuen. J. A.....Duluth
McDonald, A. L.....Duluth
McGiffert, E. N.....Duluth
McMahon, C. G. Copperville, Tenn.
Magie, W. H.....Duluth
Malmgren, C. V.....Virginia
Maynard, C. W.....Eveleth
More, C. W.....Eveleth
Morss, Clarence R.....Coleraine
Murphy, Ignatius J.....Duluth
Murray, D. D.....Duluth
Nyquist, J. E. .....Cloquet
Oredson, O. A.....Duluth
Pare, L. T.....Duluth
Parker, O. W.....Ely
Patton, F. J.....Duluth
Payette, C. H.....Duluth
Pengelly, Edward J.....Hibbing
Robinson, J. M.....Duluth
Rood, D. C.....Hibbing
Rowe, O. W.....Duluth
Schroeder, Charles H.....Duluth
Schwartz, A. H.....Duluth
Seashore, D. E.....Duluth
Shellman, J.....Nashwauk
Smith, B. A.....Biwabik
Speck, J. T.....Proctor
Stewart, C. A.....Duluth
Sukeforth, L. A. .....Duluth
Taylor, A. C.....Duluth
Taylor, Rood .....Duluth
Tilderquist, D. L.....Duluth
Tufty, J. M. O.....Duluth
Tuohy, E. L.....Duluth
Vercellini, Joseph .....Duluth
Wagner, P. S.....Two Harbors
Walker, A. E.....Duluth
Wallace, C. J.....Duluth
Weum, T. W.....South Haven
Wilkinson, Stella .....Duluth
Winter, John A.....Duluth
Wunder, H. E.....Duluth

FOURTH DISTRICT

COUNCILOR, F. A. KNIGHTS.....Minneapolis

Hennepin County Medical Society

Regular meetings, first Monday in each month, except July and August

Annual meeting in January

PRESIDENT

Kimball, H. H.....Minneapolis

SECRETARY

Huennekens, E. J.....Minneapolis

Abbott, A. W.....Minneapolis
Adair, F. L.....Minneapolis
Aldrich, A. G.....Minneapolis
Aling, C. P.....Minneapolis
Allen, H. W.....Minneapolis
Anderson, A. E.....Minneapolis
Anderson, J. D.....Minneapolis
Angell, W. A.....Minneapolis
Annis, H. B.....Minneapolis
Arey, H. C.....Excelsior
Aspelund, S. J.....Minneapolis
Aune, Martin.....Minneapolis
Aurand, W. H.....Minneapolis
Aurness, P. A.....Minneapolis
Austin, Edward E.....Minneapolis
Avery, J. Fowler.....Minneapolis
Aylmer, A. L.....Minneapolis
Baier, Florence C.....Minneapolis
Baker, E. L.....Minneapolis
Baker, Looe .....Minneapolis
Bakke, O. H.....Minneapolis
Baldwin, L. B.....Minneapolis
Barber, J. P.....Minneapolis
Bass, G. W.....Minneapolis
Baxter, S. H.....Minneapolis
Beck, J. F.....Minneapolis
Bell, J. W.....Minneapolis
Benedict, E. E.....Minneapolis
Benjamin, A. E.....Minneapolis
Benson, G. E.....Minneapolis
Bessesen, A. N. .....Minneapolis
Bissell, Frank S.....Minneapolis
Blake, James .....Hopkins
Blomburgh, A. F.....Minneapolis
Bockman, M.....Minneapolis
Booth, A. E.....Minneapolis
Boreen, Clifton A.....Minneapolis
Bouman, H. A.....Minneapolis
Bracken, H. M.....Minneapolis
Bradley, C. H.....Minneapolis
Brede, W. G.....Minneapolis
Brimmer, A. E.....Minneapolis
Brooks, Charles N.....Minneapolis
Brown, E. D.....Minneapolis
Brown, E. J.....Minneapolis
Brown, Paul F.....Minneapolis
Brown, R. S.....Minneapolis
Bryant, O. R.....Minneapolis
Butler, John .....Minneapolis
Byrnes, W. J.....Minneapolis
Campbell, R. A. .....Minneapolis
Canfield, H. E.....Minneapolis
Carlaw, C. M.....Minneapolis
Cary, H. E.....Minneapolis
Cates, A. B.....Minneapolis
Chapman, O. S.....Minneapolis
Chowning, Wm. M.....Minneapolis
Cirkler, A. A.....Minneapolis
Cohen, H. A.....Minneapolis
Collins, Herbert O.....Minneapolis
Condit, W. H.....Minneapolis
Cook, Henry W.....Minneapolis
Corbett, J. F.....Minneapolis
Cosman, E. O.....Minneapolis
Cowles, D. C.....Minneapolis
Crafts, Leo M.....Minneapolis
Cranmer, R. R.....Minneapolis
Crosby, J. A.....Minneapolis
Cross, Jno. G.....Minneapolis
Crume, Geo. P.....Minneapolis
Day, L. W.....Minneapolis
Dearborn, B. S.....Minneapolis
Deziel, G.....Minneapolis
Disen, C. F.....Minneapolis
Donaldson, C. A.....Minneapolis
Driesbach, N.....Minneapolis
Dunsmoor, F. A.....Minneapolis
Dutton, C. E.....Minneapolis
Egan, John M.....Minneapolis
Eggen, O. K.....Minneapolis
Eitel, Geo. G.....Minneapolis
Erb, Frederick A.....Minneapolis
Ericson, J. G.....Minneapolis
Farr, R. E.....Minneapolis
Feidt, W. W.....Minneapolis
Fifield, Emily W.....Minneapolis
FitzGerald, Don F....Minneapolis
Fleming, A. S.....Minneapolis
Fox, Jno. M.....Minneapolis
Franzen, H. G.....Minneapolis
Fryberger, W. O.....Minneapolis
Geist, Emil S.....Minneapolis
George, J. W.....Minneapolis
Gilkey, S. E.....Minneapolis
Gordon, G. J. .....Minneapolis
Gould, J. B.....Minneapolis
Graham, B. F.....Minneapolis
Green, E. K.....Minneapolis
Guilford, H. M.....Minneapolis
Gunderson, H. J.....Robbinsdale
Hagen, G. L.....Minneapolis
Haggard, G. D.....Minneapolis
Hall, Pearl M.....Minneapolis
Hall, W. A.....Minneapolis
Hallowell, Wm. H.....Minneapolis
Hamilton, A. S.....Minneapolis
Hanscome, W. C.....Minneapolis
Hare, E. R.....Minneapolis
Harrah, J. W.....Minneapolis
Harrington, C. D.....Minneapolis
Hartzell, Thos. B.....Minneapolis
Haverfield, Addie R...Minneapolis
Haynes, F. E.....Minneapolis
Head, Geo. D.....Minneapolis
Hedback, A. E.....Minneapolis
Hedding, J. A.....Minneapolis
Helk, H. H.....Minneapolis
Henry, C. E.....Minneapolis
Higbee, Albert E.....Minneapolis
Higbee, Paul A.....Minneapolis
Higgins, J. H.....Minneapolis
Hill, Eleanor J.....Minneapolis
Hill, R. J.....Minneapolis
Hirschfield, Adolph.....Minneapolis

Hcegh, Knut.....Minneapolis
Horning, D. W.....Minneapolis
Hutchins, E. A.....Minneapolis
Hvoslef, Jakob.....Minneapolis
Hynes, James .....Minneapolis
Hynes, J. E. .....Minneapolis
Irvine, H. G.....Minneapolis
Irwin, A. F.....Cleveland, Ohio
Jacobson-Keats, Julia M.....
.....Harvey, N. D.
Jensen, M. J.....Minneapolis
Johann, Albert E.....Minneapolis
Johnson, A. E.....Minneapolis
Johnson, H. Amanda...Minneapolis
Johnson, Julius .....Minneapolis
Johnson, Nimrod A....Minneapolis
Jones, G. M.....Minneapolis
Jones, Herbert W.....Minneapolis
Jones, W. A.....Minneapolis
Kelly, E. S.....Minneapolis
Kennedy, Jane F.....Minneapolis
Kerrick, Stanley E....Minneapolis
King, E. A.....Minneapolis
Kistler, C. M.....Minneapolis
Kistler, J. M.....Minneapolis
Knight, H. L.....Minneapolis
Knight, Ray Robert...Minneapolis
Knights, F. A. .....Minneapolis
Kohler, Geo. A.....Minneapolis
Koller, L. R.....Minneapolis
Kriedt, Dan'l.....Minneapolis
Krogstad, Olaf E....Minneapolis
Lampson, H. G.....Minneapolis
Lapierre, C. A. .....Minneapolis
Laurent, A. A.....Minneapolis
La Vake, R. T.....Minneapolis
Law, A. A. .....Minneapolis
Laws, C. H.....Minneapolis
Leavitt, H. H.....Minneapolis
Lee, Thos. G.....Minneapolis
Leland, M. N.....Minneapolis
Lemstrom, Jarl .....Minneapolis
Lewis, J. D.....Minneapolis
Lewis, J. M.....Minneapolis
Lind, A.....Minneapolis
Lind, C. J.....Minneapolis
Linner, H. P.....Minneapolis
Little, J. W.....Minneapolis
Litzenberg, J. C.....Minneapolis
Loberg, A. E.....Minneapolis
Long, Jesse.....Minneapolis
Luther, Clara M.....Minneapolis
Lynch, M. J.....Minneapolis
McCollom, C. A.....Minneapolis
McDaniel, Oriana.....Minneapolis
McDermott, T. E.....Minneapolis
McDonald, H. N.....Minneapolis
McDonald, I. C.....Minneapolis
McEachran, A.....Minneapolis
McLaughlin, J. A.....Minneapolis
MacDonald, D. A.....Minneapolis
Macdonald, J. W.....Minneapolis
Macnie, J. S.....Minneapolis
Maguire, M. F.....Minneapolis
Maland, C. O.....Minneapolis
Mann, A. T.....Minneapolis
Marcley, W. J.....Minneapolis
Martin, T. R.....Duluth
Maxeiner, Stanley R...Minneapolis
May, W. H.....Minneapolis
Mead, Marion A.....Minneapolis
Meyer, E. L.....Minneapolis
Miller, Hugo H.....Minneapolis
Miller, Troy S.....Minneapolis
Moir, Wm. W.....Minneapolis
Monahan, J. A.....Minneapolis
Moore, J. E.....Minneapolis
Moorehead, Martha B...Minneapolis
Moren, E.....Minneapolis
Morris, Minor.....Hopkins
Morse, John H.....Minneapolis
Morton, H. McI.....Minneapolis
Mullin, R. H.....Minneapolis
Murdock, A. J.....Minneapolis
Murphy, W. B.....Minneapolis
Murray, Wm. R.....Minneapolis
Nelson, C. P.....Minneapolis
Nelson, H. S.....Minneapolis
Newhart, Horace.....Minneapolis
Newkirk, H. D.....Minneapolis
Nickerson, M. L. .....Minneapolis
Nippert, L. A.....Minneapolis
Nissen, Henrik .....Minneapolis
Nootnagel, C. F.....Minneapolis
Norred, C. H. .....Minneapolis
Noth, H. W.....Minneapolis
Nye, W. F.....Minneapolis
Oberg, C. M.....Minneapolis
O'Donnell, J. E.....Minneapolis
Olson, Olaf A.....Minneapolis
Orton, H. N.....Minneapolis
Owre, Oscar .....Minneapolis
Parker, E. H.....Minneapolis
Parks, Albert H.....Minneapolis
Parmelee, A. H.....Minneapolis
Pederson, R. M.....Minneapolis
Peters, R. M.....Minneapolis
Pettit, C. W.....Minneapolis
Pineo, W. B.....Minneapolis
Plehn, J. F.....Minneapolis
Plonske, C. J.....Minneapolis
Poehler, F. T.....Minneapolis
Poppe, Fred H.....Minneapolis
Pratt, F. J.....Minneapolis
Prim, J. A.....Minneapolis
Quinby, Thos. F.....Minneapolis
Quist, Henry W.....Minneapolis
Redd, J. H.....Minneapolis
Reed, Chas. A. .....Minneapolis
Rees, S. P.....Minneapolis
Rexford, L. A.....Minneapolis
Ringnell, C. J.....Minneapolis
Rishmiller, J. H.....Minneapolis
Roan, Carl M.....Minneapolis
Roberts, Geo. F.....Minneapolis
Roberts, Thos. S.....Minneapolis
Roberts, W. B.....Minneapolis
Robertson, H. E.....Minneapolis
Robitshek, E. C.....Minneapolis
Rochford, W. E.....Minneapolis
Rodda, F. C.....Robbinsdale
Rodgers, C. L.....Minneapolis
Rosen, Samuel .....Minneapolis
Rutledge, J. W.....Minneapolis
Schefcik, J. F.....Minneapolis
Schjelderup, N. H.....Minneapolis
Schlutz, F. W.....Minneapolis
Schmidt, Karl H.....Minneapolis
Schulze, Geo. .....Minneapolis
Schwyzer, G.....Minneapolis
Seashore, Gilbert.....Minneapolis
Sedgwick, J. P. .....Minneapolis
Seham, M. .....Minneapolis
Shelden, W. D.....Minneapolis
Simons, Jalmar.....Minneapolis
Simpson, J. D.....Minneapolis
Slvertsen, Ivar.....Minneapolis
Slocumb, Maude S.....Minneapolis
Smith, Arthur E.....Minneapolis
Smith, D. Edmund.....Minneapolis
Smith, Norman M.....Minneapolis
Soderlind, A.....Minneapolis
Spratt, C. J.....Minneapolis
Spratt, C. N.....Minneapolis
Staples, H. L.....Minneapolis
Stewart, J. Clark.....Minneapolis
Stone, J. Leslie.....Minneapolis
Strachauer, Arthur C..Minneapolis
Strout, E. S.....Minneapolis
Stuart, J. H.....Minneapolis
Sweetser, H. B.....Minneapolis
Sweitzer, S. E. .....Minneapolis
Taft, J. O.....Minneapolis
Talbot, Ada E.....Minneapolis
Tennyson, Falk .....Minneapolis
Tennyson, Theodore ...Minneapolis
Thomas, David O. ....Minneapolis
Thomas, Geo. E.....Minneapolis
Thomas, G. H.....Minneapolis
Tibbetts, J. I.....Wayzata
Tingdale, A. C.....Minneapolis
Todd, F. C.....Minneapolis
Torland, A. O.....Minneapolis
Towers, F. E.....Minneapolis
Tunstead, Hugh ....Minneapolis
Tyrrell, C. C.....Minneapolis
Ulrich, Henry L.....Minneapolis
Ulrich, Mabel S.....Minneapolis
Van Deboget, Lewis...Minneapolis
Voyer, Emile O.....Minneapolis
Wang, A. M.....Minneapolis
Wanous, E. Z.....Minneapolis
Warham, Thos. T.....Minneapolis
Watson, C. W.....Minneapolis
Watson, J. A.....Minneapolis
Watson, John.....St. Louis Park
Wesbrook, F. F.....Minneapolis
Weston, C. G.....Minneapolis
Wethall, A. G.....Minneapolis
Wheat, F. C.....Minneapolis
Whetstone, Mary S....Minneapolis
Whipple, C. D.....Minneapolis
White, S. Marx.....Minneapolis
Wilcox, Archa E.....Minneapolis
Wilcox, M. Russell.....Minneapolis
Willcutt, Clarence...Minneapolis
Williams, C. W.....Minneapolis
Williams, H. L.....Minneapolis
Williams, Robert .....Minneapolis
Williams, U. G.....Minneapolis
Wood, Douglas F.....Minneapolis
Woodard, F. R.....Minneapolis
Woodworth, Elizabeth..Minneapolis
Workman, W. G.....Minneapolis
Wright, C. B.....Minneapolis
Wright, C. D'a.....Minneapolis
Wright, F. R.....Minneapolis
Wright, Swan G.....Minneapolis
Yoerg, O. W.....Minneapolis

Meeker County Medical Society

Regular meetings monthly

Annual meeting in December

PRESIDENT

Robertson, Archibald W..Litchfield

SECRETARY

Danielson, Karl A.....Litchfield

Brigham, F. T.....Watkins
Chapman, W. E.....Litchfield
Cutts, G. A. C.....Grove City
Donovan, J. J.....Litchfield
Hildebrandt, Ernest...Forest City
Kauffman, John H.....Dassel
O'Connor, D. C.....Eden Valley
Peterson, A. C.....Dassel
Peterson, George E.....Dassel

Wright County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in October

PRESIDENT

Ridgway, A. M.....Annandale

SECRETARY

Catlin, John J. .....Buffalo

Chilton, E. Y.....Howard Lake
Hawkins, E. P.....Montrose
Hengstler, Wm. H.....Rockford
Hill, A. L.....Monticello
Metcalf, J. N.....Monticello
Roseau, Victor.....Maple Lake
Shrader, E. E.....Watertown
Smith, L. G.....Buffalo
Warner, E. A.....Waverly

Stearns-Benton County Medical Society

Regular meetings, third Thursday in January, April, July, and October

Annual meeting in April

PRESIDENT

Beaty, J. H. .....St. Cloud

SECRETARY

Boehm, J. C.....St. Cloud

Anderson, E. A.....Holdingford
Beebe, W. L. .....St. Cloud
Brigham, Charles F.....St. Cloud
Brigham, G. S.....St. Cloud
DuBois, Julian A.....Sauk Center
Eckstein, A. W.....St. Cloud
Edmunds, I. L.....Clearwater
Friesleben, William...Sauk Rapids
Gaag, Edward W.....
.....St. Martin, P. O. Zion
Gelz, John J.....Richmond
Goehrs, H. W.....Melrose
Green, E. F.....St. Cloud
Gulde, W. C.....St. Cloud
Hilbert, Pierre A.....Melrose
Hitchings, Wm. S.....Belgrade
Holdridge, Geo. A.....Foley
Jellison, E. R.....Raymond
Kern, Max J.....St. Cloud
Kirghis, A. J.....St. Cloud
Kolset, Carl D.....Brooten
Kuhlmann, August.....Melrose
Lamb, Harold L.....Sauk Center
Lewis, C. B. .....St. Cloud
Lewis, Edwin J.....Sauk Center
McDowell, J. P.....Kimball
Moynihan, A. F.....Sauk Center
Pilon, Pierre C.....Paynesville
Pinnault, H. A.....St. Joseph
Putney, George E.....Paynesville
Rand, M. J.....Sauk Rapids
Rathbun, A. M.....Rice
Ridgway, Alex.....Belgrade
Sherwood, Geo. E.....Kimball
Sutton, C. S.....St. Cloud
Trace, O. C.....Clear Lake
Watson, Tolbert.....Albany
Whiting, A. D.....St. Cloud
Wolner, O. H.....Hanover

Kandiyohi-Swift County Medical Society

Regular meetings, on call of the President

Annual meeting in April

No report received from the above Society.—The Secretary.

FIFTH DISTRICT

COUNCILOR, H. M. WORKMAN.....Tracy

Camp Release District Medical Society

Renville, Chippewa, Lac qui Parle, Yellow Medicine, and Sibley Counties

Regular meetings, fourth Thursday in January, April, July, and October

Annual meeting in October

PRESIDENT

Adams, R. C.....Bird Island

SECRETARY

Zimbeck, R. D. .....Montevideo

Aldrich, F. H.....Belview
Bacon, R. S.....Montevideo
Beck, W. M.....Clarkfield
Bergh, L. N.....Montevideo
Burns, F. W.....Milan
Burns, M. A.....Milan
Bushey, M. E.....Arlington
Chadbourn, A. G....Redwood Falls
Clay, E. M.....Renville
Cole, H. B.....Franklin
Cressy, F. J.....Granite Falls
Davison, P. C.....Clara City
Duclos, J. A.....Henderson
Duncan, H. .....Marietta
Ferguson, James B.....Olivia
Flinn, Thos. E.....Redwood Falls
Flower, Ward Z.....Gibbon
Gaines, E. C.....Buffalo Lake
Gammell, H. W.....Madison
Giere, E. O.....Madison
Hacking, F. H.....Granite Falls
Hammerstrand, F. L.....
..... Sacred Heart
Hauge, M. M.....Clarkfield
Helland, J. W. .....Maynard
Holmberg, L. J.....Canby
Johnson, A. E.....Madison
Johnson, Carl M.....Montevideo
Johnson, H. M..... ....Dawson
Johnson, Otto F..... . . Winthrop
Jones, D. N.....Gaylord
Kanne, C. W.....Arlington
Kerns, H. .....Granite Falls
Koren, F.....Madison
LaRue, B. F.....Appleton
Lima, L. .....Montevideo
Marken, M. H.....Boyd
Mee, P. H.....Osseo
Mesker, G. H. .....Olivia
Moore, W. J.....Wood Lake
Nelson, N. A.....Dawson
Pease, G. R.....Redwood Falls
Penhall, F. W.....Morton
Peterson, T.....Gaylord
Powell, C. B.....Madison
Puffer, F. L.....Bird Island
Schneider, J. P.....Green Isle
Stemsrud, A. A.....Dawson
Strout, G. E.....Winthrop
Walker, G. H.....Fairfax

Brown-Redwood County Medical Society

Annual meeting in March

PRESIDENT

Schoch, J. L.....New Ulm

SECRETARY

Reineke, G. F.....New Ulm

Adams, J. L. .....Morgan
Brand, W. A. .....Redwood Falls
Brey, F. W.....Wabasso
Fritsche, L. A.....New Ulm
Gleysteen, D.....Lamberton
Gray, F. D.....Marshall
Herron, D. A.....Comfrey
Jamieson, Earl ...Walnut Grove
Kiefer, M. A.....Sleepy Eye
Kusske, A. L.....Hutchinson
Meierding, W. A.....Springfield
Piper, M. C.....Sanborn
Rothenberg, J. C.....Springfield
Seifert, O. J.....New Ulm
Shrader, J. S.....Springfield
Strickler, O. C.....New Ulm
Sundt, Mathias .....Hanska
Vogel, J. H.....New Ulm
Weiser, G. B.....New Ulm
Wellcome, J. W. B.....Sleepy Eye

Lyon-Lincoln County Medical Society

Regular meetings in February, May, July, and October

Annual meeting in February

PRESIDENT

Wakefield, Wm.....Lake Benton

SECRETARY

Workman, H. M. .....Tracy

Akester, Ward.....Marshall
Bacon, C. G.....Marshall
Cox, A. J.....Tyler
Germo, Chas.....Balaton
Hard, A. D.....Marshall
Hoidale, A. D. .....Tracy
Jacquot, G. L.....Ivanhoe
Jensen, J. C.....Hendricks
Persons, C. E.....Marshall
Robertson, J. B.....Cottonwood
Sanderson, Ed. T.....Minneota
Thordarson, Th.....Minneota
Vadheim, Alfred L.....Tyler
Valentine, W. H.....Tracy

SIXTH DISTRICT

COUNCILOR, A. E. SPALDING.....Luverne

Southwestern Medical Society

Pipestone, Rock, Nobles, Murray, and Cottonwood Counties

Regular meetings, second Thursday in May and November

Annual meeting in November

PRESIDENT

Sogge, L. .....Windom

SECRETARY

King, Emil .....Fulda

Arnold, E. W.....Bigelow
Balcom, G. G.....Lake Wilson
Bong, J. H.....Jasper
Brown, A. H.....Pipestone
Coulter, H. W.....Mountain Lake
Cress, P. J.....Ellsworth
De Boer, Hermanus....Edgerton
Dolan, C. P.....Worthington
Doms, H. C.....Slayton
Dudley, J. H.....Windom
Gerber, Lou M.....Jasper
Hart, Bruce D.....Round Lake
Leebens, John H.....Lismore
Lowe, Thomas.....Pipestone
McKeown, E. G.....Edgerton
Manson, F. M. .....Worthington
May, C. C.....Adrian
Miller, Victor I.....Mankato
Mork, B. O.....Worthington
Patterson, E. W.....Westbrook
Paulson, T. S.....Hills
Rice, Geo. D.....Paynesville
Richardson, W. E.....Slayton
Richmond, D. C.....Windom
Schmidt, H. A.....Westbrook
Senn, Edward W.....Slayton
Sherman, C. L.....Luverne
Smallwood, J. T. ....Worthington
Spalding, A. E.....Luverne
Sullivan, M.....Adrian
Taylor, Wm. J.....Pipestone
Tofte, Josephine B....Pine City
Wiedow, Henry.....Worthington
Weiser, F. R.....Windom
Williams, A. B.....Wilmont
Williams, Leon A.....Slayton
Wright, C. O.....Luverne

Blue Earth Valley Medical Society

Faribault and Martin Counties

Regular meetings, second Tuesday in January and July

Annual meeting in January

PRESIDENT

Hunt, F. N.....Blue Earth

SECRETARY

Broberg, J. A. .....Blue Earth

Barr, W. H.....Wells
Burton, C. N.....Blue Earth
Chambers, W. C.....Blue Earth
Dewey, G. W.....Fairmont
Durgin, F. L.....Winnebago
Edwards, R. T.....Ceylon
Gaugh, W. H.....Granada
Holm, P. F.....Wells
Hunt, R. C.....Blue Earth
Hunte, A. F.....Truman
Jacobs, A. C.....Elmore
Johnson, H. P.....Fairmont
Luedtke, G. H.....Fairmont
McGroarty, J. J.....Easton
Mikkelsen, M. .....Wells
Nelson, O. E.....Truman
Richardson, W. J. .....Fairmont

Jackson County Medical Society

Regular meetings, second Tuesday in May and November

Annual meeting in November

PRESIDENT

Benson, Iver S.....Jackson

SECRETARY

Allen, R. W.....Heron Lake

Allen, Cora S.....Heron Lake
Arzt, Herbert L.....Jackson
Leigh, H. J.....Lakefield
Maitland, David P.....Jackson
Moe, Anton J.....Heron Lake
Portman, William C.....Jackson
Searles, Scott .....Lakefield

Watonwan County Medical Society

Regular meetings, February, October and December

Annual meeting in December

PRESIDENT

Grimes, H. B.....Madelia

SECRETARY

Haynes, B. H. .....St. James

Kabrick, O. A.....Odin
McCarthy, W. J.....Madelia
Rowe, W. H.....St. James
Rowe, W. H., Jr.....St. James
Thompson, Albert .....St. James

SEVENTH DISTRICT

COUNCILOR, F. A. DODGE.....Le Sueur

Nicollet-Le Sueur County Medical Society

Regular meetings, January and September

Annual meeting in January

PRESIDENT

McDougald, D. W.....Le Sueur

SECRETARY

Le Clerc, Joseph E.....Le Sueur

Aitkens, H. B....Le Sueur Center

Baskett, Geo. T.....St. Peter
Baskett, L. W.....St. Peter
Baskett, Olive T.....St. Peter
Blakely, C. C.....St. Peter
Daniels, J. W.....St, Peter
Dodge, F. A.....Le Sueur
Freeman, Geo. H.....Willmar
Hartung, H. A.....Le Sueur
McIntyre, G. W.....St. Peter
Merritt, G. F.....St. Peter
Olson, R. G.....Nicollet
Powell, W. H.....Kasota
Strathern, F. P.....St. Peter
Theissen, W. N.....Minneapolis
Tomlinson, H. A.....Willmar
Woodworth, L. F..Le Sueur Center

McLeod County Medical Society

Regular meetings, January, April, July, and October

Annual meeting in January

PRESIDENT
Clement, J. B.....Lester Prairie
SECRETARY
Maurer, E. L.....Brownton

Axilrod, D. L.....Hutchinson
Barrett, E. E.....Glencoe
Bolles, D. W.....Minneapolis
Hovorka, T. W. .....Glencoe
Scholpp, O. W.....Hutchinson
Sheppard, Fred.....Hutchinson
Sheppard, P. E.....Hutchinson
Tinker, C. W.....Stewart
Wakefield, Kee .....Hutchinson
Wheeler, M. W.....Glencoe

Scott-Carver County Medical Society

Regular meetings, first Thursday in March, June, September, and December

Annual meeting in December

PRESIDENT
Fischer, H. P.....Shakopee
SECRETARY
Reiter, H. W. .....Shakopee
Bohland, F. J.....Belle Plaine

Buck, Fred H.....Shakopee
Cannady, E. E.....Prior Lake
Chernausek, Samuel Montgomery
Grivelli, Chas. T..Young America
Grivelly, Hans J.....
.....Waynesburg, Ky.
Henricksen, H. G.....New Market
Landenberger, John..New Prague
Moloney, G. R.....Belle Plaine
Molzahn, H. E.....Belle Plaine
Phillips, Wm. H.....Jordan
Schneider, H. A.....Jordan
Westerman, F. C.....Montgomery
White, J. B.....Jordan

Goodhue County Medical Society

Regular meetings, first Tuesday after first Monday in January, April, July and October

Annual meeting in January

PRESIDENT
McKinstry, H. L.....Red Wing
SECRETARY
Conley, A. T.....Cannon Falls
Anderson, J. V. .....Red Wing

Claydon, L. E.....Red Wing
Conley, H. E.....Cannon Falls
Cremer, M. H.....Red Wing
Cremer, P. H.....Cannon Falls
Gates, C. E.....Goodhue
Gates, J. A.....Kenyon
Hill, Charles.....Pine Island
Johnson, A. E.....Red Wing
Jones, A. W.....Red Wing
Larson, O. O.....Zumbrota
McGuigan, H. T.....Red Wing
McKaig, C. B.....Pine Island
Sawyer, H. P.....Goodhue
Smith, M. W.....Red Wing
Wellner, G. C.....Red Wing
Werner, N. L.....Red Wing

Rice County Medical Society

Regular meetings, first Wednesday in January, April, July, and October

Annual meeting in January

PRESIDENT
Rogers, A. C.....Faribault
SECRETARY
Davis, F. U.....Faribault
Haessley, S. B.....Faribault
Hanson, A. M.....Faribault
Hunt, W. A.....Northfield

Huxley, F. R. .....Faribault
Lane, Laura A.....Northfield
Lee, W. P.....Northfield
Lexa, F. J.....Lonsdale
Macdonald, A.....Morristown
Mayland, M. L.....Faribault
Moulton, A. B.....Faribault
Phillips, J. G.....Northfield
Robilliard, W. H.....Faribault
Rumpf, W. H.....Faribault
Seeley, I. F.....Northfield
Seeley, J. S.....Faribault
Smith, H. R.....Faribault
Smith, P. A.....Faribault
Strang, D. M.....Northfield
Warren, F. S.....Faribault
Wilson, W.....Northfield

Wabasha County Medical Society

Regular meeting (annually) first Thursday after first Monday in July

PRESIDENT
Dempsey, D. P.....Kellogg
SECRETARY
Wilson, W. F. .....Lake City

Adams, W. T. .....Elgin
Bayley, E. H.....Lake City
Cochrane, W. J.....Lake City
Fleischhauer, D. S.....Wabasha
French, E. A.....Plainview
Heagerty, W. B.....Mazeppa
Ingram, L. C.....Red Wing
Nauth, W. W.....Minneiska
Rankin, A. A.....Zumbro Falls
Shaughnessy, M. J.....Wabasha
Slocumb, H. H.....Elgin
Slocumb, J. A.....Plainview

EIGHTH DISTRICT

COUNCILOR, A. O. BJELLAND.....Mankato

Blue Earth County Medical Society

Regular meetings last Monday of each month

Annual meeting, December meeting

PRESIDENT
Schmitt, A. F.....Mankato
SECRETARY
Dahl, G. A. .....Mankato

Allen, Frank A.....Elysian
Andrews, J. W.....Mankato
Andrews, Roy N.....Mankato
Benham, E. W.....Mankato
Bigelow, Charles E...Madison Lake
Bjelland, A. O.....Mankato
Bomberger, F. J.....Mapleton

Brandrup, Mary H.....Mankato
Curran, G. R.....Mankato
Field, Merton .....Canby
Gosslee, G. L....Minnesota Lake
Heilscher, Helen Hughes.....
..... Mankato
Heilscher, J. A.....Mankato
Hering, H. H.....Lake Crystal
Holbrook, J. S. .....Mankato
Holman, C. J.....Mankato
James, J. H.....Mankato
Kelly, T. C.....Mankato
Kemp, A. F.....Mankato
Krueger, L. W.....Mapleton
Lledloff, A. G.....Mankato
Lloyd, H. J.....Lake Crystal
Macbeth, J. L.....St. Clair
McMicheal, O. H.....Vernon Center
Merrill, J. E.....Amboy
Osborn, Lida.....Mankato
Pratt, C. C.....Mankato
Rosenwald, J. P.....Mankato
Schlesselman, J. T...Good Thunder
Sohmer, A. E.....Mankato
Sullivan, Jane Hughes..Mankato
Valin, H. D.....Mankato

Dodge County Medical Society

Regular meetings, third Wednesday in June and September

Annual meeting in June

PRESIDENT

.....

SECRETARY

Davis, F. W.....Kasson

Adams, R. T.....Mantorville
Baker, A. L. .....Kasson
Belt, W. E.....Dodge Center
Bigelow, C. E.....Madison Lake
Clifford, F. F.....West Concord
Way, O. F.....Clairmont

Freeborn County Medical Society

Regular meetings, February, May, August and November

Annual meeting in May

PRESIDENT

Von Berg, J. P.....Albert Lea

SECRETARY

Stevenson, Robert G...Albert Lea

Bessesen, W. A.....Albert Lea

Burton, Oscar A.....Albert Lea
Calhoun, Frank W.....Albert Lea
Christiansen, James .....Alden
Dunn, J. T.....Albert Lea
Freeman, J. P.....Glenville
Garlock, A. V.....Hartland
Gordon, David.....Boulder, Colo.
Gramenz, F.....Albert Lea
Kamp, Byron A.....Alden
Nannestad, J. R.....Albert Lea
Nelson, A. S.....Glenville
Palmer, W. L.....Albert Lea
Rodli, O. E.....Albert Lea
Schultz, J. A.....Emmons

Houston-Fillmore County Medical Society

Regular meetings May, August and October

Annual meeting in May

PRESIDENT

.....

SECRETARY

Fischer, O. F.....Houston

Browning, W. E. .....Caledonla

Eby, Cyrus B.....Spring Valley
Gowdy, F. A.....Sidney, Montana
Helland, G. M.....Spring Grove
Hvoslef, J. C. .....Lanesboro
Kibbe, O. A.....Canton
Kierland, P. E.....Harmony
Lannin, J. C.....Mabel
Love, George A.....Preston
Nass, H. A.....Mabel
Onsgard, C. K.....Rushford
Onsgard, L. K.....Houston
Reay, G. R.....Hokah
Utley, J. D.....Spring Valley
Woodruff, C. W.....Chatfield

Mower County Medical Society

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in October

PRESIDENT

Torkelson, P. T.....Lyle

SECRETARY

Rebman, E. C.....Austin
Allen, A. W.....Austin

Allen, C. C.....Austin
Cobb, W. F.....Lyle
Hart, M. J.....LeRoy
Hegge, C. A.....Austin
Hegge, O. H.....Austin
Henslin, A. E.....LeRoy
Johnson, C. H.....Austin
Leck, Clifford C.....Austin
Lewis, C. F.....Austin
McBroom, D. E.....Adams
Mitchell, R. S.....Grand Meadow
Rogers, G. M. F.....Austin
Schottler, G. J.....Dexter

Olmsted County Medical Society

Regular meetings, second Friday in each alternate month

Annual meeting in January

PRESIDENT

Wilson, L. B. .....Rochester

SECRETARY

Crewe, John E.....Rochester

Adams, A. S.....Rochester
Balfour, Donald .....Rochester
Beckman, E. H.....Rochester
Braasch, W. F.....Rochester
Dugan, R. C.....Eyota

Eusterman, Geo. .....Rochester
Fawcett, Charles E....Stewartville
Giffin, H. Z.....Rochester
Graham, C.....Rochester
Granger, Chas. T.....Rochester
Granger, Gertrude B....Rochester
Hallenbeck, Dorr F.....Eyota
Henderson, M. S.....Rochester
Heyerdale, O. C.....Rochester
Judd, E. S.....Rochester
Kilbourne, A. F.....Rochester
Linton, Laura A.....Rochester
Linton, W. B.....Rochester
MacCarty, W. C.....Rochester
Matthews, Justus .....Rochester
Mayo, C. H.....Rochester
Mayo, W. J.....Rochester
Mosse, F. R.....Rochester
Mussey, R. D.....Rochester
Plummer, H. S.....Rochester
Russell, H. R.....Stewartville
Smith, F. L.....Chatfield
Stacy, Leda .....Rochester
Steven, George .....Byron
Witherstine, H. H.....Rochester

Steele County Medical Society

Regular meetings, first Tuesday in odd numbered months

Annual meeting in January

PRESIDENT

Melby, Benedick..Blooming Prairie

SECRETARY

Stewart, Allan B. .....Owatonna

Adair, John H. .....Owatonna
Andrist, J. W.....Owatonna
Ertel, E. Q.....Ellendale
Eustis, W. C. .....Owatonna
Hatch, Theo. L. .....Owatonna
Morehouse, G. G.....Owatonna
Peterson, Christian ...Owatonna
Smersh, Francis M.....Owatonna
Warren, J. W....Blooming Prairie
Wood, Harry G.....Rochester

Waseca County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in January

PRESIDENT

Blanchard, H. G.....Waseca

SECRETARY

Meilicke, W. A.....Janesville

Batchelder, E. J.....New Richland
Chamberlin, W. A.....Waseca
Cory, Wm. M. .....Waterville
Hagen, H. O.....New Richland
Joyce, T. M.....Janesville
Lynn, J. F.....Waseca
O'Hara, J. J.....Janesville
Rudolf, A. J.....Waseca
Swartwood, F. A.....Waseca

Winona County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in October

PRESIDENT

Leicht, Oswald .....Winona

SECRETARY.

McGaughey, H. F.....Winona

Clark, C. N.....St. Charles
Clay, F. H.....St. Charles
Dolder, F. C.....St. Charles
Gates, G. L.....Winona
Heise, W. F. C.....Winona
Keyes, E. D.....Winona
Lichtenstein, H. M.....Winona
Lindsay, W. V.....Winona
Lynch, Elizabeth .....Winona
Lynch, J. L.....Winona
McLaughlin, E. M. .....Winona
Muir, Edwin S. .....Winona
Munger, L. H.....Winona
Neumann, C. A.....Lewiston
Neumann, W. H. .....Lewiston
Pritchard, D. B.....Winona
Robbins, C. P.....Winona
Rollins, F. H.....St. Charles
Scott, J. W.....St. Charles
Steinbach, John .....Winona
Stewart, D. A.....Winona
Tweedy, G. J.....Winona

ALPHABETICAL ROSTER

Aborn, W. H.....Dilworth
Abbott, A. W.....Minneapolis
Abbott, E. J.....St. Paul
Abbott, J. S.....St. Paul
Abbott, Wm. P.....Duluth
Abramovich, J. H.....St. Paul
Adair, F. L.....Minneapolis
Adair, John H.....Owatonna
Adams, A. S.....Rochester
Adams, B. S.....Hibbing
Adams, J. L.....Morgan
Adams, R. C.....Bird Island
Adams, R. T.....Mantorville
Adams, W. T.....Elgin
Adkins, C. M.....Grygla
Aitkens, H. B....Le Sueur Center
Akester, Ward.....Marshall
Aldrich, A. G.....Minneapolis
Aldrich, F. H. .....Belview
Alexander, F. H.....St. Paul
Aling, C. P.....Minneapolis
Allen, A. W.....Austin
Allen, C. C.....Austin
Allen, Cora S.....Heron Lake
Allen, Frank A.....Elysian
Allen, F. H.....Staples
Allen, H. W.....Minneapolis
Allen, Mason .....St. Paul
Allen, R. W.....Heron Lake
Ancker, A. B.....St. Paul
Anderson, A. E.....Minneapolis
Anderson, C. A.....Rush City
Anderson, Ernest A....Holdingford
Anderson, James C.....Duluth
Anderson, J. D.....Minneapolis
Anderson, J. V.....Red Wing
Anderson, L. N.....Duluth
Anderson, W. S.....Warren
Andrews, J. W... .....Mankato
Andrews, Roy N.....Mankato
Andrist, J. W.....Owatonna
Angell, W. A.....Minneapolis
Annis, H. B.....Minneapolis
Arey, H. C.....Excelsior
Armstrong, J. M.....St. Paul
Arneson, Thomas ..Twin Valley
Arnold, E. W.....Bigelow
Arnold, S. E.....Clinton
Arzt, C. P.....St. Paul
Arzt, Herbert L.....Jackson
Aspelund, S. J.....Minneapolis
Aune, Martin.....Minneapolis
Aurand, W. H.....Minneapolis
Aurness, P. A.....Minneapolis
Austin, Edward E.....Minneapolis
Avery, J. Fowler.....Minneapolis
Awty, W. J.....Moorhead
Axilrod, D. L.....Hutchinson
Ayers, G. T.....Ely
Aylmer, A. L.....Minneapolis

Bacon, C. G.....Marshall
Bacon, Knox.....St. Paul
Bacon, L. C.....St. Paul
Bacon, R. S.....Montevideo
Baier, Florence C.....Minneapolis
Baker, A. C.....Fergus Falls
Baker, A. L.....Kasson
Baker, E. L.....Minneapolis
Baker, Looe .....Minneapolis
Bakke, O. H.....Minneapolis
Balcome, F. E.....St. Paul
Balcom, G. G.....Lake Wilson
Baldwin, L. B.....Minneapolis
Balfour, Donald .....Rochester
Ball, C. R.....St. Paul
Barber, J. P.....Minneapolis
Barclay, A.....Cloquet
Barney, L. A.....Duluth
Barr, W. H.....Wells
Barrett, E. E.....Glencoe
Barrett, Fred.....Gilbert
Barrows, R. E.....Eveleth
Barsness, Nellie .....St. Paul
Barton, E. R.....Frazee
Bass, G. W.....Minneapolis
Baskett, Geo. T.....St. Peter
Baskett, L. W.....St. Peter
Baskett, Olive T.....St. Peter
Batchelder, E. J....New Richland
Batcheller, Oliver T.....Brainerd
Baxter, S. H.....Minneapolis
Bayley, E. H.....Lake City
Beadie, W. D.....St. Paul
Beaty, J. H. .....St. Cloud
Beaudoux, H. A.....St. Paul
Beck, J. F.....Minneapolis
Beck, W. M.....Clarkfield
Beckley, F. L. .....St. Paul
Beckman, E. H.....Rochester
Beebe, Warren L.....St. Cloud
Belse, R. A.....Brainerd
Bell, J. W.....Minneapolis
Belt, W. E.....Dodge Center
Benedict, E. E.....Minneapolis
Benepe, L. M.....St. Paul
Benham, E. W.....Mankato
Benjamin, A. E.....Minneapolis
Bennion, P. H. .....St. Paul
Benson, G. E.....Minneapolis
Benson, Iver S.....Jackson
Bergh, L. N.....Montevideo
Bertelsen, O. L.....Crookston
Berthold, J. L.....Perham
Bessesen, A. N.....Minneapolis
Bessesen, W. A.....Albert Lea
Bettingen, J. W.....St. Paul
Bigelow, C. E.....Madison Lake
Bissell, Frank S.....Minneapolis
Bjelland, A. O.....Mankato
Blacklock, S. S.....Hibbing
Blanchard, H. G.....Waseca
Blake, James .....Hopkins
Blakely, C. C.....St. Peter
Blomburgh, A. F.....Minneapolis
Bloom, C. J.....Mora
Bock, R. A.....St. Paul
Bockman, M.....Minneapolis
Boeckmann, Eduard ....St. Paul
Boeckmann, Egil .....St. Paul
Boehm, J. C.....St. Cloud
Bohland, E. H.....St. Paul
Bohland, F. J.....Belle Plaine
Bole, R. S.....St. Paul
Boleyn, E. S.....Stillwater
Bolles, D. W.....Minneapolis
Bolsta, Chas.....Ortonville
Bomberger, F. J.....Mapleton
Bong, J. H.....Jasper
Booth, A. E.....Minneapolis
Boreen, Clifton A.....Minneapolis
Bouman, H. A.....Minneapolis
Bowers, J. T.....Gully
Boyd, L. M.....Alexandria
Boyer, S. H.....Duluth
Boysen, Peter....Pelican Rapids
Braasch, W. F.....Rochester
Bracken, H. M.....Minneapolis
Braden, A. J.....Duluth
Bradley, C. H.....Minneapolis
Brand, W. A.....Redwood Falls
Brandrup, Mary H.....Mankato
Bratrud, Theodore .....Warren
Bray, C. W.....Biwabik
Bray, E. R.....St. Paul
Brede, W. G.....Minneapolis
Breitenbach, O. C.....Frazee
Brey, F. W.....Wabasso
Briggs, F. W.....Hendrum
Brigham, Charles F.....St. Cloud
Brigham, F. T.....Watkins
Brigham, G. S.....St. Cloud
Brimhall, J. B.....St. Paul
Brimmer, A. E.....Minneapolis
Broberg, J. A. .....Blue Earth
Brooks, Charles N.....Minneapolis
Brooks, D. F.....St. Paul
Brooks, G. F.....Stevenson
Brown, A. H.....Pipestone
Brown, E. D.....Minneapolis
Brown, E. I.....St. Paul
Brown, E. J.....Minneapolis
Brown, J. C.....St. Paul
Brown, Paul F.....Minneapolis
Brown, R. S.....Minneapolis
Brown, S. E.....St. Paul
Browning, W. E.....Caledonia
Bryant, O. R.....Minneapolis
Buck, Fred H.....Shakopee
Buckley, E. W.....St. Paul
Budd, J. D.....Two Harbors
Bullen, F. W.....Hibbing
Burch, F. E.....St. Paul
Burfiend, G. H. .....Afton
Burnap, W. L. .....Pelican Rapids
Burns, F. W.....Milan
Burns, M. A.....Milan
Burns, R. M.....St. Paul
Burton, C. N.....Blue Earth
Burton, Oscar A.....Albert Lea
Bushey, M. E.....Arlington
Butler, John .....Minneapolis
Byrnes, W. J.....Minneapolis

Caine, C. E.....Morris
Caldwell, Knox.....St. Paul
Calhoun, Frank W.....Albert Lea
Cameron, J. A.....St. Paul
Campbell, A. A.....St. Paul
Campbell, C. M.....Starbuck
Campbell, E. P.....St. Paul
Campbell, J. E.....South St. Paul
Campbell, R. A.....Minneapolis
Campbell, R. W.....Swanville
Cannady, E. E.....Prior Lake
Canfield, H. E.....Minneapolis
Cannon, C. M.....St. Paul
Cannon, Harry .....St. Paul
Carlaw, C. M.....Minneapolis
Carman, Chas. L.....St. Paul
Carman, J. B.....Detroit
Carman, J. E.....Detroit
Cary, H. E.....Minneapolis
Carstens, C. F.....Keewatin
Cates, A. B.....Minneapolis
Catlin, John J.....Buffalo
Catlin, T. J.....Palisade
Cavanaugh, J. O.....St. Paul
Cavanor, Frank T.....Wheaton
Chadbourn, A. G....Redwood Falls
Chamberlin, J. W.....St. Paul
Chamberlin, W. A.....Waseca
Chambers, W. C.....Blue Earth
Chapman, O. S.....Minneapolis
Chapman, T. L.....Duluth
Chapman, W. E.....Litchfield
Charpentier, A. A.....St. Paul
Chatterton, C. C.....St. Paul

Cheney, E. L.....Duluth
Chernausek, Samuel Montgomery
Chilton, E. Y.....Howard Lake
Chowning, Wm. M.....Minneapolis
Christenson, C. R.....Starbuck
Christiansen, James .....Alden
Christie, George R....Long Prairie
Christison, J. T.....St. Paul
Cirkler, A. A.....Minneapolis
Clair, J. B.....Oslo
Clark, C. H.....Duluth
Clark, C. N.....St. Charles
Clark, T. C.....Stillwater
Clay, E. M.....Renville
Clay, F. H.....St. Charles
Claydon, L. E.....Red Wing
Clement, J. B.....Lester Prairie
Clifford, F. F.....West Concord
Cobb, W. F.....Lyle
Cochrane, W. J.....Lake City
Cohen, H. A.....Minneapolis
Cole, Herman B.....Franklin
Cole, Wallace.....St. Paul
Coleman, Fred B.....Carlos
Collins, Arthur N.....Duluth
Collins, Herbert O.....Minneapolis
Collins, Homer C.....Duluth
Colvin, A. R.....St. Paul
Comstock, A. E.....St. Paul
Condit, W. H.....Minneapolis
Conkey, C. D. .....Duluth
Conley, A. T.....Cannon Falls
Conley, H. E.....Cannon Falls
Cook, Henry W.....Minneapolis
Cook, Paul B.....St. Paul
Cooney, H. C.....Princeton
Corbett, J. F.....Minneapolis
Corrigan, J. E.....Spooner
Cory, Wm. M.....Waterville
Cosman, E. O.....Minneapolis
Coulter, Chas. F.....Wadena
Coulter, H. W.....Mountain Lake
Courtney, Walter .....Brainerd
Coventry, W. A.....Duluth
Cowles, D. C.....Minneapolis
Cox, A. J.....Tyler
Crafts, Leo M.....Minneapolis
Cranmer, R. R.....Minneapolis
Cremer, M. H.....Red Wing
Cremer, P. H.....Cannon Falls
Cress, P. J.....Ellsworth
Cressy, F. J.....Granite Falls
Crewe, John E.....Rochester
Crosby, J. A.....Minneapolis
Cross, Jno. G.....Minneapolis
Crossette, Geo. D.....Chokio
Crowe, J. H. .....Virginia
Crume, Geo. P.....Minneapolis
Cuff, W. S.....St. Paul
Curran, G. R.....Mankato
Cutts, G. A. C.....Grove City

Dahl, G. A. .....Mankato
Dahlquist, G. W.....Lancaster
Dampier, C. E.....Crookston
Daniels, J. W.....St. Peter
Danielson, Karl A.....Litchfield
Darling, J. B.....St. Paul
Darrow, Daniel C.....Moorhead
Daugherty, E. B.....Pine City
Daugherty, L. E.....St. Paul
Davis, H. S.....Duluth
Davis, F. U.....Faribault
Davis, F. W.....Kasson
Davis, Herbert .....St. Paul
Davis, L. A.....Dalton
Davis, William .....St. Paul
Davison, P. C.....Clara City
Day, L. W.....Minneapolis
Dearborn, B. S.....Minneapolis
De Boer, Hermanus....Edgerton
Dedolph, Karl.....St. Paul
Dempsey, D. P.....Kellogg
Dennis, W. A.....St. Paul
Denny, C. F.....St. Paul
Deslauriers, A. A.....Duluth
Desmond, M. A.....Akeley
Dewar, J. Evan.....St. Paul
Dewey, G. W.....Fairmont
Deziel, G.....Minneapolis
Dickson, T. H., Jr.....St. Paul
Disen, C. F.....Minneapolis
Dittman, Geo. C.....St. Paul
Dodge, Franklin A.....Le Sueur
Dodge, W. M.....Farmington
Dohm, A. J.....St. Paul
Dohm, C. L.....St. Paul
Dolan, C. P.....Worthington
Dolan, W. G.....Cloquet
Dolder, F. C.....St. Charles
Doms, H. C.....Slayton
Donaldson, C. A.....Minneapolis
Donovan, J. J.....Litchfield
Drake, Carl B.....St. Paul
Drake, Charles R.....St. Paul
Dredge, H. P.....Sandstone
Drenning, F. C.....Duluth
Driesbach, N.....Minneapolis
Dryden, F. M.....Crookston
DuBois, Julian A.....Sauk Center
Duclos, J. A.....Henderson
Dudley, J. H.....Windom
Dugan, R. C.....Eyota
Duncan, H. .....Marietta
Dunlop, A. H.....Crookston
Dunn, J. T.....Albert Lea
Dunning, A. W.....St. Paul
Dunsmoor, F. A.....Minneapolis
Durgin, F. L.....Winnebago
Dutton, C. E.....Minneapolis

Earl, George A.....St. Paul
Earl, R. O.....St. Paul
Eberlin, E. A.....Glenwood
Eby, Cyrus B.....Spring Valley
Eckstein, A. W.....St. Cloud
Edmunds, I. L.....Clearwater
Edwards, R. T.....Ceylon
Egan, John M.....Minneapolis
Eggen, O. K.....Minneapolis
Ehmke, W. C.....Willow River
Eitel, Geo. G.....Minneapolis
Ekblad, J. W.....Duluth
Eklund, J. J.....Duluth
Ellis, W. E.....Alexandria
Elsey, J. R.....Glenwood
Erb, Frederick A.....Minneapolis
Ericson, J. G.....Minneapolis
Ernest, Geo. C.....St. Paul
Ertel, E. Q.....Ellendale
Eshelby, E. C.....St. Paul
Esser, John .....Perham
Estrem, C. O.....Detroit
Eusterman, Geo. .....Rochester
Eustis, W. C.....Owatonna
Ewing, C. F.....Wheaton

Fahey, E. W.....Duluth
Farmer, J. C.....McKinley
Farr, R. E.....Minneapolis
Fawcett, Chas. E....Stewartville
Feidt, W. W.....Minneapolis
Ferguson, J. C.....St. Paul
Ferguson, James B.....Olivia
Field, Merton .....Canby
Fifield, Emily W.....Minneapolis
Fischer, H. P.....Shakopee
Fischer, O. F.....Houston
FitzGerald, Don F....Minneapolis
Fitzgerald, E. T.....Morris
Fjelstad, C. A.....Glenwood
Flagg, S. D.....St. Paul
Fleischhauer, D. S.....Wabasha
Fleming, A. S.....Minneapolis
Fleming, James .....Cloquet
Flinn, Thos. E....Redwood Falls
Flower, Ward Z.....Gibbon
Fosness, E. G.....St. Paul
Foster, Burnside .....St. Paul
Fox, Jno. M.....Minneapolis
Francis, S. O.....White Bear
Franzen, H. G.....Minneapolis
Frasier, G. W.....Minneapolis
Freeborn, J. A.....Fergus Falls
Freeman, Charles D.....St. Paul
Freeman, Geo. H.....Willmar
Freeman, J. P.....Glenville
Freligh, E. O'B.....Stillwater
French, E. A.....Plainview
Friesleben, William...Sauk Rapids
Fritsche, L. A.....New Ulm
Fryberger, W. O.....Minneapolis
Fullerton, W. S.....St. Paul
Fulton, John.....St. Paul
Furber, W. W.....Cottage Grove

Gaag, Edward W.....
.....St. Martin, P. O. Zion
Gambell, F. H....Thief River Falls
Gammell, H. W.....Madison
Gaines, E. C.....Buffalo Lake
Gates, C. E.....Goodhue
Gates, G. L.....Winona
Gates, J. A.....Kenyon
Garand, J. H.....Dayton
Garlock, A. V.....Hartland
Gauger, E. C.....St. Paul
Gaugh, W. H.....Granada
Geer, E. F.....St. Paul
Geist, Emil S.....Minneapolis
Geist, Geo. A.....St. Paul
Gelz, John J.....Richmond
George, J. W.....Minneapolis
Gerber, Lou M.....Jasper
Germo, Chas.....Balaton
Ghent, Charles H.....Graceville
Ghent, M. M.....St. Paul
Gibbon, L. L.....Lowry
Giere, E. O.....Madison
Giffin, H. Z.....Rochester
Gilbert, John D.....Carlton
Gilfillan, J. S.....St. Paul
Gilkey, S. E.....Minneapolis
Gilkinson, A. J. .....Osakis
Gillespie, N. H.....Duluth
Gillette, A. J.....St. Paul
Gilmore, R. T.....Bemidji
Giroux, A. A.....Duluth
Gleysteen, D.....Lamberton
Goehrs, H. W.....Melrose
Goltz, E. V.....St. Paul
Gordon, David.....Boulder, Colo.
Gordon, G. J. .....Minneapolis
Gosslee, A. F.....Deer Creek
Gosslee, G. L....Minnesota Lake
Gotham, Charles M.....St. Paul
Gothe, L. W.....St. Paul
Gould, J. B.....Minneapolis
Gowdy, F. A.....Sidney, Montana
Graff, James R.....Duluth
Graham, B. F.....Minneapolis
Graham, C.....Rochester
Graham, David .....Duluth
Graham, R.....Duluth
Gramenz, F.....Albert Lea
Granger, Chas. T.....Rochester
Granger, Gertrude B....Rochester
Gravelle, J. M. A.....St. Paul
Graves, Carlton .....Altkin
Grawn, F. A. .....Duluth
Gray, C. E.....Rush City
Gray, F. D.....Marshall
Greeley, L. Q.....Duluth
Green, E. F.....St. Cloud
Greene, Charles Lyman...St. Paul
Green, E. K.....Minneapolis
Grimes, H. B.....Madelia
Grivelli, Chas. T..Young America
Grivelly, Hans J.....
.....Waynesburg, Ky.
Guilford, H. M.....Minneapolis
Gulde, W. C.....St. Cloud
Gunderson, H. J.....Robbinsdale
Gunz, A. N.....Centre City

Hacking, F. H.....Granite Falls
Haessley, S. B.....Faribault
Hagen, G. L.....Minneapolis
Hagen, H. O.....New Richland
Hagen, Ole J.....Moorhead
Haggard, G. D.....Minneapolis
Haight, G. G.....Audubon
Haines, J. H.....Stillwater
Hall, A. R.....St. Paul
Hall, Elmer E.....Little Falls
Hall, Pearl M.....Minneapolis
Hall, W. A.....Minneapolis
Hallenbeck, Dorr F.....Eyota
Hallowell, Wm. H.....Minneapolis
Hamel, C. E.....McIntosh
Hamilton, A. S.....Minneapolis
Hammerstrand, F. L.....
.....Sacred Heart
Hammes, E. M.....St. Paul
Hammond, J. F.....St. Paul
Hand, W. R.....Elbow Lake
Haney, C. L.....Duluth
Hanscome, W. C.....Minneapolis
Hanson, A. M.....Faribault
Hard, A. D.....Marshall
Harding, J. C.....St. Paul
Hare, E. R.....Minneapolis
Harrah, J. W.....Minneapolis
Harrington, C. D.....Minneapolis
Hart, A. B.....Pequot
Hart, Bruce D.....Round Lake
Hart, M. J.....LeRoy
Hartung, H. A.....Le Sueur
Hartzell, Thos. B.....Minneapolis
Harwood, W. E.....Eveleth
Haskell, A. D.....Alexandria
Hatch, Theodore L.....Owatonna
Haugan, O. M.....Fergus Falls
Hauge, M. M.....Clarkfield
Haugen, G. T.....Battle Lake
Haugseth, Enoch....Twin Valley
Havens, J. G. W.....Cloquet

Haverfield, Addie R....Minneapolis
Hawkins, E. P.....Montrose
Hawkins, V. J.....St. Paul
Haynes, B. H. .....St. James
Haynes, F. E.....Minneapolis
Head, Geo. D.....Minneapolis
Heagerty, W. B.....Mazeppa
Heath, A. C.....St. Paul
Hedback, A. E.....Minneapolis
Hedding, J. A.....Minneapolis
Hegge, C. A.....Austin
Hegge, O. H.....Austin
Heimark, J. H.....Hawley
Heimark, O. E.....Duluth
Heise, W. F. C.....Winona
Heilscher, Helen Hughes.....
..... Mankato
Heilscher, J. A.....Mankato
Helk, H. H.....Minneapolis
Helland, G. M.....Spring Grove
Helland, J. W. .....Maynard
Hempstead, B. E.....Duluth
Henderson, M. S.....Rochester
Henderson, A..Powell River, B. C.
Hengstler, Wm. H.....Rockford
Henricksen, H. G.....New Market
Hendrickson, J. F.....Fertile
Henry, C. E.....Minneapolis
Hensel, Charles N.....St. Paul
Henslin, A. E.....LeRoy
Hering, H. H.....Lake Crystal
Herron, D. A.....Comfrey
Hesselgrave, S. S.....St. Paul
Heyerdale, O. C.....Rochester
Hieber, H. G...Thief River Falls
Higbee, Albert E.....Minneapolis
Higbee, Paul A.....Minneapolis
Higgins, J. H.....Minneapolis
Hilbert, Pierre A.....Melrose
Hildebrandt, Ernest...Forest City
Hilger, A. W.....St. Paul
Hilger, D. D.....St. Paul
Hill, A. L.....Monticello
Hill, Charles.....Pine Island
Hill, Eleanor J.....Minneapolis
Hill, R. J.....Minneapolis
Hirschfield, Adolph.....Minneapolis
Hirschfield, M. S.....Duluth
Hitchings, Wm. S.....Belgrade
Hodgson, H. H.....Crookston
Hoegh, Knut .....Minneapolis
Hoff, Alfred .....St. Paul
Hoff, Peder A..... St. Paul
Hoffman, J.....Henning
Hoidale, A. D. .....Tracy
Hoit, Edward E.....Detroit
Holbrook, J. S.....Mankato
Holcomb, O. W.....St. Paul
Holdridge, Geo. A.....Foley
Holl, P. M.....Minneapolis
Hollands, Wm.....Fisher
Holm, P. F.....Wells
Holman, C. J.....Mankato
Holmberg, L. J.....Canby
Holst, C. F.....Little Falls
Holst, J. B.....Little Falls
Holte, H. .....Crookston
Horning, D. W.....Minneapolis
Howg, E. M.....Greenbush
Hovorka, T. W. .....Glencoe
Hubert, R. I.....St. Paul
Hulburd, H. L.....Morris
Humphrey, E. W.....Moorhead
Humphrey, W. R.....Stillwater
Huennekens, E. J.....Minneapolis
Hunt, F. N.....Blue Earth
Hunt, H. E. .....St. Paul
Hunt, R. C.....Blue Earth
Hunt, W. A.....Northfield
Hunte, A. F.....Truman
Hutchins, E. A.....Minneapolis
Huxley, F. R.....Faribault
Hvoslef, Jakob .....Minneapolis
Hvoslef, J. C. .....Lanesboro
Hynes, James .....Minneapolis
Hynes, J. E. .....Minneapolis

Ide, A. W.....Brainerd
Ingerson, Carl A.....St. Paul
Ingram, L. C.....Red Wing
Irvine, H. G.....Minneapolis
Irwin, A. F.....Cleveland, Ohio

Jacobs, A. C.....Elmore
Jacobson-Keats, Julia M.....
.....Harvey, N. D
Jacquot, G. L.....Ivanhoe
James, J. H.....Mankato
Jamieson, Earl ...Walnut Grove

Jellison, E. R.....Raymond
Jensen, J. C.....Hendricks
Jensen, M. J.....Minneapolis
Jensen, T. J.....Duluth
Johann, Albert E.....Minneapolis
Johnson, A. E.....Madison
Johnson, A. E.....Minneapolis
Johnson, A. E.....Red Wing
Johnson, Asa M.....St. Paul
Johnson, Carl M.....Montevideo
Johnson, C. H.....Austin
Johnson, E. W.....Bemidji
Johnson, Geo. L.....Newfolden
Johnson, H. Amanda...Minneapolis
Johnson, H. C.....St. Paul
Johnson, H. M.....Dawson
Johnson, H. P.....Fairmont
Johnson, Julius .....Minneapolis
Johnson, Nimrod A....Minneapolis
Johnson, Oscar V.....Sebeka
Johnson, Otto F.....Winthrop
Johnson, T. H.....St. Paul
Jones, A. W.....Red Wing
Jones, D. C.....St. Paul
Jones, D. N.....Gaylord
Jones, G. M.....Minneapolis
Jones, Herbert W.....Minneapolis
Jones, W. A.....Minneapolis
Joyce, T. M.....Janesville
Judd, E. S.....Rochester
Judson, W. E.....Duluth
Just, A. A.....Crookston

Kabrick, O. A.....Odin
Kaess, A. J.....Fargo, N. D.
Kahala, Arthur.....Erskine
Kalinoff, D.....Stillwater
Kamp, Byron A.....Alden
Kannary, E. L.....St. Paul
Kanne, C. W.....Arlington
Karn, B. R.....Ortonville
Karn, J.....Ortonville
Kauffman, John H.....Dassel
Kean, N. D.....Coleraine
Keene, L. M.....Alexandria
Kelly, B. W.....Altkin
Kelly, E. S.....Minneapolis
Kelly, John V.....St. Paul
Kelly, Paul H.....St. Paul
Kelly, T. C.....Mankato
Kelly, W. D.....St. Paul
Kemp, A. F.....Mankato
Kennedy, Jane F.....Minneapolis
Kenyon, Paul E.....Wadena
Kern, Max J.....St. Cloud
Kerns, H. .....Granite Falls
Kerrick, Stanley E....Minneapolis
Kesting, Herman.....St. Paul
Keyes, C. R.....Duluth
Keyes, E. D.....Winona
Kibbe, O. A.....Canton
Kiefer, M. A.....Sleepy Eye
Kierland, P. E.....Harmony
Kilbourne, A. F.....Rochester
Kimball, H. H.....Minneapolis
King, E. A.....Minneapolis
King, Emil .....Fulda
Kirghis, A. J.....St. Cloud
Kirmse, G. W.....Frazee
Kistler, A. S.....St. Paul
Kistler, C. M.....Minneapolis
Kistler, J. M.....Minneapolis
Kittelson, T. N.....Fergus Falls
Kjelland, J. S.....Crookston
Knickerbocker, Frank H....Staples
Knight, H. L.....Minneapolis
Knight, Ray Robert...Minneapolis
Knights, F. A.....Minneapolis
Koch, J. C.....Blackduck
Kohler, Geo. A.....Minneapolis
Koller, L. R.....Minneapolis
Kolset, Carl D.....Brooten
Koren, F.....Madison
Kraft, Peter .....Duluth
Kriedt, Dan'l .....Minneapolis
Krogstad, Olaf E....Minneapolis
Krueger, L. W.....Mapleton
Kuhlmann, August.....Melrose
Kusske, A. L.....Hutchinson
Kuth, J. R. .....Duluth

Laird, A. T.....Duluth
Lalonde, Edmond.....St. Paul
Lamb, Harold L.....Sauk Center
Lampson, H. G.....Minneapolis
Lande, Wm. B.....St. Paul
Landeen, F. G.....Stillwater
Landenberger, John..New Prague
Lane, Laura A.....Northfield

Lankester, Howard .....St. Paul
Lannin, J. C.....Mabel
Lapierre, C. A.....Minneapolis
Larsen, C. L.....St. Paul
Larson, O. O.....Zumbrota
LaRue, B. F.....Appleton
Laurent, A. A.....Minneapolis
La Vake, R. T.....Minneapolis
Law, A. A. .....Minneapolis
Laws, C. H.....Minneapolis
Leach, W. D.....Callaway
Leahy, Bartholomew....St. Paul
Leavitt, H. H.....Minneapolis
Leavitt, Frederick E.....St. Paul
Leck, Clifford C.....Austin
Le Clerc, Joseph E.....Le Sueur
Lee, Thos. G.....Minneapolis
Lee, W. P.....Northfield
Leebens, John H.....Lismore
Leibold, H. H.....Parkers Prairie
Leicht, Oswald .....Winona
Leigh, H. J.....Lakefield
Leitch, Arch. .....St. Paul
Leland, J. T.....Herman
Leland, M. N.....Minneapolis
Lemieux, Israel....Red Lake Falls
Lemstrom, Jarl .....Minneapolis
Lenont, C. B.....Virginia
Lepak, F. J.....Duluth
Lerche, Wm.....St. Paul
Lester, C. A.....Alexandria
Leuty, Amos .....Morris
Lewis, C. B. .....St. Cloud
Lewis, C. F.....Austin
Lewis, Edwin J.....Sauk Center
Lewis, J. B.....St. Paul
Lewis, J. D.....Minneapolis
Lewis, J. M.....Minneapolis
Lewis, W. W.....St. Paul
Lexa, F. J.....Lonsdale
Lichtenstein, H. M.....Winona
Lledloff, A. G.....Mankato
Lima, Ludwig .....Montevideo
Lind, A.....Minneapolis
Lind, C. J.....Minneapolis
Lindberg, A. C.....North Branch
Linde, Herman .....Cyrus
Lindsay, W. V.....Winona
Linneman, N. L.....Duluth
Linner, H. P.....Minneapolis
Linton, Laura A.....Rochester
Linton, W. B.....Rochester
Little, J. W.....Minneapolis
Little, W. J. .....St. Paul
Litzenberg, J. C.....Minneapolis
Lloyd, H. J.....Lake Crystal
Loberg, A. F.....Minneapolis
Long, Jesse .....Minneapolis
Love, Geo. A.....Preston
Lowe, L. M.....Glyndon
Lowe, Thomas .....Pipestone
Lowthian, G. H.....Akeley
Luedtke, G. H.....Fairmont
Lufkin, H. M.....St. Paul
Lum, C. E.....Duluth
Lundholm, E. M.....St. Paul
Luther, Clara M.....Minneapolis
Lynam, F.....Duluth
Lynch, Elizabeth .....Winona
Lynch, J. L.....Winona
Lynch, M. J.....Minneapolis
Lyng, John A.....Fergus Falls
Lynn, J. F.....Waseca

McAuliffe, J. A.....Duluth
McBroom, D. E.....Adams
McCabe, W. F.....Duluth
McCarthy, W. J.....Madelia
McCarthy, W. R.....St. Paul
McCloud, C. N.....St. Paul
McCollom, C. A.....Minneapolis
McComb, C. F.....Duluth
McCord, E. W.....St. Paul
McCoy, Mary K.....Duluth
McCuen, J. A.....Duluth
McDaniel, Oriana .....Minneapolis
McDavitt, Thos.....St. Paul
McDermott, T. E.....Minneapolis
McDonald, A. L.....Duluth
McDonald, H. N.....Minneapolis
McDonald, I. C.....Minneapolis
McDougald, D. W.....Le Sueur
McDowell, J. P.....Kimball
McEachran, A.....Minneapolis
McEachern, W. A.....Sandstone
McGaughey, H. F.....Winona
McGiffert, E. N.....Duluth
McGroarty, J. J.....Easton
McGuigan, H. T.....Red Wing

McIntyre, G. W .....St. Peter
McKaig, C. B.....Pine Island
McKeon, Owen.....St. Paul
McKeown, E. G.....Edgerton
McKinstry, H. L.....Red Wing
McLaren, Jennette M.....St. Paul
McLaughlin, E. M.....Winona
McLaughlin, J. A.....Minneapolis
McMahon, C. G.Copperville, Tenn.
McMichael, O. H.....Vernon Center
McNevin, C. F.....St. Paul
Macbeth, J. L.....St. Clair
MacCarty, W. C.....Rochester
Macdonald, A.....Morristown
MacDonald, D. A.....Minneapolis
Macdonald, J. W.....Minneapolis
MacLaren, Archibald .....St. Paul
Macnie, J. S.....Minneapolis
Magie, W. H.....Duluth
Maguire, M. F.....Minneapolis
Maitland, David P.....Jackson
Maland, C. O.....Minneapolis
Malmgren, C. V.....Virginia
Mann, A. T.....Minneapolis
Manson, F. M. .....Worthington
Marcley, W. J.....Minneapolis
Marcum, E. H.....Bemidji
Marken, M. H.....Boyd
Markoe, J. C.....St. Paul
Martin, T. R.....Duluth
Matthews, Justus.....Rochester
Maurer, E. L.....Brownton
Maxeiner, Stanley R...Minneapolis
Meckstroth, C. W.....Brandon
May, C. C.....Adrian
May, W. H.....Minneapolis
Mayland, M. L.....Faribault
Maynard, C. W.....Eveleth
Mayo, C. H.....Rochester
Mayo, W. J.....Rochester
Mee, P. H.....Osseo
Mead, Marion A.....Minneapolis
Meade, Charles J.....St. Paul
Meckstroth, C. W.....Brandon
Meierding, W. A.....Springfield
Meighen, J. W.....Ulen
Meilicke, W. A.....Janesville
Melby, Benedick..Blooming Prairie
Melby, O. F.....Thief River Falls
Merrill, B. J.....Stillwater
Merrill, J. E.....Amboy
Merritt, Geo. F.....St. Peter
Mesker, G. H.....Olivia
Metcalf, J. N.....Monticello
Meyer, E. L.....Minneapolis
Meyerding, E. A.....St. Paul
Mikkelsen, M. .....Wells
Miller, Hugo H.....Minneapolis
Miller, Troy S.....Minneapolis
Miller, Victor I.....Mankato
Miller, W. A.....New York Mills
Millspaugh, J. G.....Little Falls
Mitchell, Frederick J.....St. Paul
Mitchell, R. S.....Grand Meadow
Moe, Anton J.....Heron Lake
Moir, Wm. W.....Minneapolis
Moloney, G. R.....Belle Plaine
Molzahn, H. E.....Belle Plaine
Monahan, J. A.....Minneapolis
Monahan, R. H.....Intl. Falls
Moore, J. E.....Minneapolis
Moore, W. J.....Wood Lake
More, C. W.....Eveleth
Moorehead, Martha B..Minneapolis
Morehouse, G. G.....Owatonna
Moren, E.....Minneapolis
Morell, W. N.....Verndale
Mork, B. O.....Worthington
Morley, G. A.....Crookston
Morris, Minor.....Hopkins
Morse, John H.....Minneapolis
Morss, Clarence R.....Coleraine
Mortensen, N. G.....St. Paul
Morton, H. McI.....Minneapolis
Mosse, F. R.....Rochester
Moulton, A. B.....Faribault
Moynihan, A. F.....Sauk Center
Moynihan, T. J.....St. Paul
Muir, Edwin S.....Winona
Muir, J. B.....Roseau
Mullin, R. H.....Minneapolis
Munger, L. H.....Winona
Murdock, A. J.....Minneapolis
Murdock, H. G.....Taylor's Falls
Murphy, E. F.....St. Paul
Murphy, Ignatius J.....Duluth
Murphy, W. B.....Minneapolis
Murray, D. D.....Duluth
Murray, Wm. R.....Minneapolis
Mussey, R. D.....Rochester

Nannestad, J. R.....Albert Lea
Nass, H. A.....Mabel
Nauth, W. W.....Minneiska
Nelson, A. S.....Glenville
Nelson, C. P.....Minneapolis
Nelson, H. E.....Crookston
Nelson, H. S.....Minneapolis
Nelson, J. C.....St. Paul
Nelson, L. A.....St. Paul
Nelson, M. S.....Mora
Nelson, N. A.....Dawson
Nelson, O. E.....Truman
Neumann, C. A.....Lewiston
Neumann, W. H.....Lewiston
Newhart, Horace.....Minneapolis
Newkirk, H. D.....Minneapolis
Nichols, A. E.....St. Paul
Nickerson, M. L. .....Minneapolis
Nippert, H. T.....St. Paul
Nippert, L. A.....Minneapolis
Nissen, Henrik .....Minneapolis
Nootnagel, C. F.....Minneapolis
Norman, J. F.....Crookston
Norred, C. H. .....Minneapolis
Norton, H. G...Crown King, Ariz.
Noth, H. W.....Minneapolis
Nye, W. F.....Minneapolis
Nyquist, J. E. .....Cloquet

Oberg, C. M.....Minneapolis
O'Brien, H. J.....St. Paul
O'Connor, D. C.....Eden Valley
O'Connor, J. V.....St. Paul
O'Donnell, J. E.....Minneapolis
O'Hara, J. J.....Janesville
O'Malley, W. P.....St. Paul
Odendahl, F. H.....St. Paul
Ogden, B. H.....St. Paul
Ogden, Emma K.....Detroit
Ohage, Justus.....St. Paul
Ohage, Justus, Jr.....St. Paul
Ohlinger, L. B.....Albert Lea
Ohnstad, J.....McIntosh
Olander, J. E.....St. Paul
Oliver, C. I.....Graceville
Olsen, S. H.....Milaca
Olson, F. A.....St. Paul
Olson, Olaf A.....Minneapolis
Olson, O. H.....Erskine
Olson, R. G.....Nicollet
Onsgard, C. K.....Rushford
Onsgard, L. K.....Houston
Oredson, O. A.....Duluth
Orton, H. N.....Minneapolis
Osborn, Lida .....Mankato
Ostergren, E. W.....St. Paul
Otto, H. C.....Vergas
Owre, Oscar .....Minneapolis

Palmer, W. L.....Albert Lea
Pare, L. T.....Duluth
Parker, E. H.....Minneapolis
Parker, O. W.....Ely
Parks, Albert H.....Minneapolis
Parmelee, A. H.....Minneapolis
Parrott, B. W.....Long Prairie
Parsons, George E.....Elk River
Patterson, C. H.....Barnesville
Patterson, E. W.....Westbrook
Patton, F. J.....Duluth
Paulson, T. S.....Hills
Payette, C. H.....Duluth
Pease, G. R.....Redwood Falls
Pederson, R. M.....Minneapolis
Pengelly, Edward J.....Hibbing
Penhall, F. W.....Morton
Persons, C. E.....Marshall
Perry, C. G.....St. Paul
Perry, Ralph St. J.....
..... Parkers Prairie
Peters, R. M.....Minneapolis
Peterson, A. C.....Dassel
Peterson, Geo. E.....Dassel
Peterson, Christian ...Owatonna
Peterson, T.....Gaylord
Peterson, V. N.....St. Paul
Pettit, C. W.....Minneapolis
Phillips, J. G.....Northfield
Phillips, Wm. H.....Jordan
Pilon, Pierre C.....Paynesville
Pine, O. S.....Soldiers' Home
Pinnault, H. A.....St. Joseph
Pine, A. A.....St. Paul
Pineo, W. B.....Minneapolis
Piper, M. C.....Sanborn
Platt, J. J.....St. Paul
Plehn, J. F.....Minneapolis
Plondke, F. J.....St. Paul
Plonske, C. J.....Minneapolis
Plummer, H. S.....Rochester

Poehler, F. T.....Minneapolis
Pool, Daniel .....St. Paul
Poppe, Fred H.....Minneapolis
Portman, William C.....Jackson
Powell, C. B.....Madison
Powell, W. H.....Kasota
Powers, F. W.....Barrett
Pratt, C. C.....Mankato
Pratt, F. J.....Minneapolis
Prim, J. A.....Minneapolis
Pritchard, D. B.....Winona
Puffer, F. L.....Bird Island
Putney, George E.....Paynesville

Quinby, Thos. F.....Minneapolis
Quinn, J. A.....St. Paul
Quist, Henry W.....Minneapolis

Raiter, Franklin.....Cloquet
Ramaley, L. .....St. Paul
Ramsey, W. R.....St. Paul
Rand, M. J.....Sauk Rapids
Randall, A. M.....Ashby
Randall, B. M. .....Graceville
Randolph, Wilson.....Crookston
Rankin, A. A.....Zumbro Falls
Ransom, M. L.....Hancock
Ratcliffe, J. J.....Aitkin
Rathbun, A. M.....Rice
Reay, G. R.....Hokah
Rebman, E. C.....Austin
Redd, J. H.....Minneapolis
Reed, Chas. A. .....Minneapolis
Rees, S. P.....Minneapolis
Reid, William .....Deer Wood
Reimstad, C. S.....Brainerd
Reineke, G. F.....New Ulm
Reiter, H. W.....Shakopee
Rexford, L. A.....Minneapolis
Rice, Geo. D.....Paynesville
Richards, E. T. F.....St. Paul
Richards, Polk.....White Earth
Richardson, W. E.....Slayton
Richardson, W. J.....Fairmont
Richmond, D. C.....Windom
Ridgway, Alex.....Belgrade
Ridgway, A. M.....Annandale
Riggs, C. E.....St. Paul
Ringnell, C. J.....Minneapolis
Rishmiller, J. H.....Minneapolis
Risjord, J. N.....Fertile
Ritchie, H. P.....St. Paul
Ritchie, Parks .....St. Paul
Roadman, Ira M.....Onamia
Roan, Carl M.....Minneapolis
Roberts, Geo. F.....Minneapolis
Roberts, L. M.....Little Falls
Roberts, Thos. S.....Minneapolis
Roberts, W. B.....Minneapolis
Robertson, Archibald W..Litchfield
Robertson, H. E.....Minneapolis
Robertson, J. B.....Cottonwood
Robbins, C. P.....Winona
Robilliard, W. H.....Faribault
Robinson, J. M.....Duluth
Robinson, L. S. B.....St. Paul
Robitshek, E. C.....Minneapolis
Rochford, W. E.....Minneapolis
Rodda, F. C.....Robbinsdale
Rodgers, C. L.....Minneapolis
Rodli, O. E.....Albert Lea
Rogers, A. C.....Faribault
Rogers, F. D.....St. Paul
Rogers, G. M. F.....Austin
Rogers, J. T.....St. Paul
Rollins, F. H.....St. Charles
Rood, D. C.....Hibbing
Roseau, Victor.....Maple Lake
Rosen, Samuel .....Minneapolis
Rosenwald, J. P.....Mankato
Rothenberg, J. C.....Springfield
Rothnem, T. P.....Wendell
Rothrock, J. L.....St. Paul
Rothschild, H. J.....St. Paul
Rowe, O. W.....Duluth
Rowe, W. H., Jr.....St. James
Rowe, W. H.....St. James
Roy, Philemon .....St. Paul
Rudolf, A. J.....Waseca
Rumpf, W. H.....Faribault
Russell, H. R.....Stewartville
Rutherford, W. C.....St. Paul
Rutledge, J. W.....Minneapolis
Ruud, M. B.....Alexandria

Sanborn, C. R.....Bemidji
Sanderson, Ed. T.....Minneota
Savage, F. J.....St. Paul
Sawyer, H. P.....Goodhue
Schefcik, J. F.....Minneapolis

Schjelderup, N. H.....Minneapolis
Schlesselman, J. T...Good Thunder
Schlutz, F. W.....Minneapolis
Schmidt, H. A.....Westbrook
Schmidt, Karl H.....Minneapolis
Schmitt, A. F.....Mankato
Schneider, H. A.....Jordan
Schneider, J. P.....Green Isle
Schoch, J. L.....New Ulm
Schoch, R. B. J.....St. Paul
Scholpp, O. W.....Hutchinson
Schons, Edward .....Zimmerman
Schottler, G. J.....Dexter
Schroeder, Charles H.....Duluth
Schuldt, F. C. .....St. Paul
Schultz, J. A.....Emmons
Schulze, Albert G.....Duluth
Schulze, George .....Minneapolis
Schwartz, A. H.....Duluth
Schwyzer, Arnold .....St. Paul
Schwyzer, G. .....Minneapolis
Scott, J. W.....St. Charles
Searles, Scott .....Lakefield
Seashore, D. E.....Duluth
Seashore, Gilbert .....Minneapolis
Sedgwick, J. P.....Minneapolis
Seeley, I. F.....Northfield
Seeley, J. S.....Faribault
Seham, M. .....Minneapolis
Seifert, O. J.....New Ulm
Senkler, Geo. E.....St. Paul
Senn, E. W.....Slayton
Serkland, J. C.....Rothsay
Sewall, G. M.....Cuyuna
Shannon, Sylvester.....Barnum
Shaughnessy, M. J.....Wabasha
Shelden, W. D.....Minneapolis
Shellman, J.....Nashwauk
Sheppard, Fred.....Hutchinson
Sheppard, P. E.....Hutchinson
Sherman, C. L.....Luverne
Sherper, M. S.....St. Paul
Sherping, O. Th.....Fergus Falls
Sherwood, Geo. E.....Kimball
Shimonek, Anton .....St. Paul
Shrader, E. E.....Watertown
Shrader, J. S.....Springfield
Shulean, Nellie.....Cambridge
Simison, C. W.....Hawley
Simon, B. F.....St. Paul
Simons, Jalmar.....Minneapolis
Simpson, J. D.....Minneapolis
Sivertsen, Ivar.....Minneapolis
Skinner, H. O.....St. Paul
Slocumb, H. H.....Elgin
Slocumb, J. A.....Plainview
Slocumb, Maude S.....Minneapolis
Smallwood, Justin T.....
..... Worthington
Smersh, Francis M.....Owatonna
Smith, Arthur E.....Minneapolis
Smith, B. A.....Biwabik
Smith, C. E., Jr.....St. Paul
Smith, D. Edmund.....Minneapolis
Smith, E. H.....Bemidji
Smith, F. L.....Chatfield
Smith, H. R.....Faribault
Smith, H. W.....Crookston
Smith, L. G.....Buffalo
Smith, M. B. .....Lake Park
Smith, M. W.....Red Wing
Smith, Norman M.....Minneapolis
Smith, P. A.....Faribault
Smith, Wm. H.....Cass Lake
Sneve, Haldor .....St. Paul
Soderlind, A.....Minneapolis
Sogge, L. .....Windom
Sohmer, A. E.....Mankato
Sohlberg, O.....St. Paul
Spalding, A. E.....Luverne
Speck, J. T.....Proctor
Spratt, C. J.....Minneapolis
Spratt, C. N.....Minneapolis
Stacy, Leda .....Rochester
Staley, John C.....St. Paul
Staples, H. L.....Minneapolis
Steen, A. H.....Cottage Grove
Steinbach, John .....Winona
Stemsrud, A. A.....Dawson
Sterner, E. G. .....St. Paul
Stevens, F. A.....Lake Elmo
Steven, George .....Byron
Stevenson, Robert G...Albert Lea
Stewart, Allan B.....Owatonna

Stewart, Alex.....Hill City
Stewart, C. A.....Duluth
Stewart, D. A.....Winona
Stewart, J. Clark.....Minneapolis
Stierle, A. Jr.....St. Paul
Stolpestad, H. L.....St. Paul
Stone, J. Leslie.....Minneapolis
Stowe, A. J.....Rush City
Strachauer, Arthur C..Minneapolis
Strang, D. M.....Northfield
Strathern, F. P.....St. Peter
Strickler, O. C.....New Ulm
Strout, E. S.....Minneapolis
Strout, G. E.....Winthrop
Stuart, J. H.....Minneapolis
Stuhr, H. C.....Argyle
Stumm, T. W.....St. Paul
Sukeforth, L. A. .....Duluth
Sullivan, Jane Hughes..Mankato
Sullivan, M.....Adrian
Sundt, Mathias .....Hanska
Sutton, C. S.....St. Cloud
Swanson, Cephas .....St. Hilaire
Swartwood, F. A.....Waseca
Swedenburg, A. W.....
.....Thief River Falls
Sweeney, Arthur .....St. Paul
Sweney, C. F.....St. Paul
Swennes, O. S.....Wahkon
Sweetser, H. B.....Minneapolis
Sweitzer, S. E. .....Minneapolis
Sykora, F. J.....Brainerd

Taft, J. O.....Minneapolis
Talbot, Ada E.....Minneapolis
Tanner, A. C.....McGregor
Taylor, A. C.....Duluth
Taylor, C. W.....Duluth
Taylor, H. L.....St. Paul
Taylor, Rood .....Duluth
Taylor, Wm. J.....Pipestone
Teisberg, C. B.....St. Paul
Tennyson, Falk .....Minneapolis
Tennyson, Theodore ...Minneapolis
Thabes, J. A.....Brainerd
Theissen, W. N.....Minneapolis
Thomas, D. O.....Minneapolis
Thomas, Geo. E.....Minneapolis
Thomas, G. H.....Minneapolis
Thompson, Albert .....St. James
Thordarson, Th.....Minneota
Thornby, H. J.....Barnesville
Tibbetts, J. I.....Wayzata
Tilderquist, D. L.....Duluth
Tilton, A. J.....Harris
Tingdale, A. C.....Minneapolis
Tinker, C. W.....Stewart
Todd, F. C.....Minneapolis
Tofte, Josephine B....Pine City
Tomlinson, H. A.....Willmar
Torkelson, P. T.....Lyle
Torland, A. O.....Minneapolis
Towers, F. E.....Minneapolis
Trace, O. C.....Clear Lake
Tufty, J. M. O.....Duluth
Tunstead, Hugh ....Minneapolis
Tuohy, E. L.....Duluth
Turnacliff, D. D.....St. Paul
Tweedy, G. J.....Winona
Tyrrell, C. C.....Minneapolis

Ulrich, Henry L.....Minneapolis
Ulrich, Mabel S.....Minneapolis
Utley, J. D.....Spring Valley

Vadheim, Alfred L. .....Tyler
Van Deboget, Lewis...Minneapolis
Van Slyke, Charles A....St. Paul
Van Valkenberg, B. F., Long Prairie
Valin, H. D.....Mankato
Valentine, W. H.....Tracy
Vercellini, Joseph .....Duluth
Verne, V. E.....Moorhead
Vigen, J. G.....Fergus Falls
Vogel, J. H.....New Ulm
Voges, A. E.....St. Paul
Von Berg, J. P.....Albert Lea
Voyer, Emile O.....Minneapolis
Vrooman, F. E.....St. Francis

Wagner, P. S.....Two Harbors
Wakefield, Kee.....Hutchinson
Wakefield, Wm.....Lake Benton
Wald, Rudolph H.....Hastings
Wallace, C. J.....Duluth

Walker, A. E.....Duluth
Walker, G. H.....Fairfax
Walsh, E. F.....St. Paul
Walters, Franklin R..Moose Lake
Wang, A. M.....Minneapolis
Wanous, E. Z.....Minneapolis
Warham, Thos. T....Minneapolis
Warner, E. A.....Waverly
Warner, E. F.....St. Paul
Warren, E. L.....St. Paul
Warren, F. S.....Faribault
Warren, J. W....Blooming Prairie
Watkins, S. O.....Carlton
Watson, A. M.....Royalton
Watson, C. W.....Minneapolis
Watson, J. A.....Minneapolis
Watson, John.....St. Louis Park
Watson, N. M.....Red Lake Falls
Watson, Tolbert.....Albany
Wattam, G. S.....Warren
Way, O. F.....Clairmont
Weeks, L. C.....Detroit
Weir, J. D.....Beardsley
Weiser, F. R.....Windom
Weiser, G. B.....New Ulm
Welch, M. C.....St. Paul
Wellcome, J. W. B.....Sleepy Eye
Wellner, G. C.....Red Wing
Wells, E. E.....Stillwater
Werner, N. L.....Red Wing
Werner, O. S.....Lindstrom
Wesbrook, F. F.....Minneapolis
Westerman, F. C.....Montgomery
Weston, C. G.....Minneapolis
Wethall, A. G.....Minneapolis
Weum, T. W.....South Haven
Wheat, F. C.....Minneapolis
Wheeler, E. C.....St. Paul
Wheeler, M. W.....Glencoe
Whetstone, Mary S....Minneapolis
Whipple, C. D.....Minneapolis
Whitacre, J. C.....St. Paul
Whitcomb, E. H.....St. Paul
White, J. B.....Jordan
White, J. S.....St. Paul
White, S. Marx.....Minneapolis
Whiting, Arthur D.....St. Cloud
Whitney, A. W.....St. Paul
Whittemore, J. G. .....Donnelly
Wiedow, Henry .....Worthington
Wilcox, Archa E.....Minneapolis
Wilcox, F. L.....Walker
Wilcox, M. Russell.....Minneapolis
Wilkinson, J. C.....Red Lake Falls
Wilkinson, Stella .....Duluth
Will, W. W.....Bertha
Willcutt, Clarence...Minneapolis
Williams, A. B.....Wilmont
Williams, C.....St. Paul
Williams, C. W.....Minneapolis
Williams, H. L.....Minneapolis
Williams, Leon A.....Slayton
Williams, Robert .....Minneapolis
Williams, U. G.....Minneapolis
Wilson, L. B. .....Rochester
Wilson, W.....Northfield
Wilson, W. F.....Lake City
Winnick, J. B.....St. Paul
Winter, John A.....Duluth
Wiseman, R. L.....Pine City
Witherstine, H. H.....Rochester
Wolner, O. H.....Hanover
Wood, Douglas F.....Minneapolis
Wood, Harry G.....Rochester
Woodard, F. R.....Minneapolis
Woodruff, C. W.....Chatfield
Woodworth, Elizabeth..Minneapolis
Woodworth, L. F. Le Sueur Center
Workman, H. M.....Tracy
Workman, W. G.....Minneapolis
Wright, C. B.....Minneapolis
Wright, C. D'a.....Minneapolis
Wright, C. O.....Luverne
Wright, F. R.....Minneapolis
Wright, Swan G.....Minneapolis
Wunder, H. E.....Duluth

Yoerg, O. W.....Minneapolis

Zander, C. H.....St. Paul
Zaun, J. J.....St. Paul
Zeien, Thos.....North Branch
Zimbeck, R. D.....Montevideo
Zimmerman, H. B.....St. Paul

CONSTITUTION AND BY-LAWS

OF THE

MINNESOTA STATE MEDICAL ASSOCIATION

ADOPTED IN 1903 AND AS AMENDED TO DATE

CONSTITUTION

ARTICLE I—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Minnesota State Medical Association.

ARTICLE II—PURPOSES OF THE ASSOCIATION

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Minnesota and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life.

ARTICLE III—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV—COMPOSITION OF THE ASSOCIATION

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2. Members. The Members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

Sec. 4. Guests. Any distinguished physician not a resident of this state who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

ARTICLE V—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), ex-officio, the President and Secretary of this Association.

ARTICLE VI—COUNCIL

The Council shall consist of the Councilors, and the President and Secretary, ex-officio. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. A majority of Councilors shall constitute a quorum.

ARTICLE VII—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE IX—OFFICERS

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years.

ARTICLE X—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one state to another may avoid the formality of re-election.

ARTICLE XI—FUNDS AND EXPENSES

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of $2.00 per capita per annum, except on a four-fifths vote

of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XII—REFERENDUM

Section 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Association, a majority of such a vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

ARTICLE XIII—THE SEAL

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XIV—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS

CHAPTER I—MEMBERSHIP

Section 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be prima facie evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

CHAPTER II—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION

Section 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

Sec. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of twenty delegates or fifty members.

CHAPTER III—GENERAL MEETINGS

Section 1. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and public.

CHAPTER IV—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet at 2 p. m. on the day before that fixed as the first day of the Annual Session. It may adjourn from time to time as may be necessary to complete its business; provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for each fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Sec. 3. Twenty delegates shall constitute a quorum.

Sec. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping-stone to future ones of higher interest.

Sec. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profes-

sion in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It shall divide the State into Councilor Districts, specifying what counties each district shall include, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such district societies. When so organized, from the presidents of such district societies shall be chosen the vice-presidents of this Association, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

CHAPTER V—ELECTION OF OFFICERS

Section 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 3. Any person known to have solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

CHAPTER VI—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the vice-presidents to succeed him.

Sec. 3. The Treasurer shall give bond in such sum as the Council may require. The Council shall execute said bond with some indemnity company at the expense of the Association. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. The amount of his salary shall be fixed by the Council.

Sec. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer, all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment, collect the same, and at once turn it over to the Treasurer. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Council. The Secretary shall present to the Association on the last day of the General Session, a summary of the proceedings of the Council and the House of Delegates.

CHAPTER VII—COUNCIL

Section 1. The Council shall meet on the day preceding the first General Meeting of the Annual Session and daily during the Session and at such other times as necessity may require, subject to the call of the chairman, or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district when necessary for the purpose of organizing component societies where none exist; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Council or in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, and each Councilor shall receive as compensation a per diem of $10.00 while engaged in making his official visits to the counties in his district, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary or the Treasurer, the Council shall fill the vacancy until the next annual election.

Sec. 6. The Council shall investigate all suits for malpractice instituted against its active members. Each Councilor shall investigate the suits occurring in his district and report to the Council as a whole.

CHAPTER VIII—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Necrology.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of whom the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates, it shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee on Arrangements shall be appointed by the component society of the county in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER IX—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State

in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the Council or House of Delegates and shall be signed by the President and Secretary of this Association. The Council or the House of Delegates shall have authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice, nor lend his support to any exclusive system of medicine, shall be entitled to membership; provided, however, that certain physicians who occupy teaching or research positions in recognized medical schools and who do not wish to be licensed to practice medicine, may acquire honorary membership in the State and component societies. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors, in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name, on request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living on or near a county line may hold his membership in that county society most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates and an alternate or alternates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of the Association before December 31st.

Sec. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association each year before December 31st.

Sec. 14. Any county society which fails to pay its assessment or make the report required, on or before December 31st, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 15. The per capita dues of the members of the component societies shall be three dollars per annum, which shall be paid and forwarded as hereinbefore provided.

CHAPTER X—MISCELLANEOUS

Section 1. No address or paper before the Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Robert's Rules of Order, when not in conflict with this Constitution and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI—MEDICAL DEFENSE

Section 1. Active members of the Minnesota State Medical Association who have paid all dues, assessments, and other charges assessed or levied by the Minnesota State Medical Association, shall be entitled, on conditions hereinafter specified, to receive, without personal expense therefor, legal advice and court service of an attorney or attorneys-at-law in the employ of the Association, witness fees for the

purpose of conducting their defense in any court in this state, when they are accused of malpractice, or of illegal transactions in connection with the commitment of persons to institutions for the insane.

Sec. 2. It shall be the duty of the Council, severally or collectively, to investigate all claims of malpractice against members, to adjust such claims in accordance with equity where possible, and, if in their judgment an adjustment is impossible, or the claim is unjust, or the damage sought is excessive, to tender such help, aid, and counsel as they may see fit. They shall be empowered to contract with a member of the bar of Minnesota as legal counsel of this Association.

Sec. 3. The Council shall make an annual report to the House of Delegates at the annual meeting for the year previous ending December 31st. This report shall contain an enumeration of all suits or threatened suits for malpractice against members of the Minnesota State Medical Association which have been properly presented to them for action.

Sec. 4. The legal services herein provided for shall be granted only on the following conditions:

First: Any active member desiring to apply for malpractice defense hereby provided, shall immediately upon receipt thereof send to the Secretary of the Minnesota State Medical Association, any letter, process of court, or other evidence of threatened litigation in connection with such malpractice case.

Second: It shall be the duty of the Secretary to forthwith examine the financial records of the Minnesota State Medical Association, and if such member so applying is found to have paid all arrearages, dues, or other charges due the Minnesota State Medical Association for the year, he shall certify those facts to the Council of the Minnesota State Medical Association, and forthwith send to such Council the papers received from the applicant for defense and such Secretary shall forthwith return to the applicant, if he shall find that the applicant has paid all arrearages due the Minnesota State Medical Association, a formal application for defense containing authority for the said Association through its attorney to defend the action and granting to the Association and its attorney sole power to conduct the defense thereof, and agreeing not to compromise or settle said claim for damages for said alleged malpractice without the consent of the Minnesota State Medical Association or its attorney. The said applicant shall furnish and return to the Secretary with his application duly executed, a full, accurate, and complete history of his treatment of the case out of which the alleged malpractice arose, giving dates, names of witnesses, nurses, and other attendants, all of which information shall, upon its receipt by him, be forwarded by the Secretary of the Minnesota State Medical Association to the Council of the Association.

Third: If, on the other hand, the Secretary finds that any member so applying has not paid all arrearages as herein specified, then and in that case, he shall return at once to the applicant all papers or memoranda received by him from said applicant, together with a statement that he is not entitled to defense and the reason therefor.

Fourth: It is further understood between each and every member of the Minnesota State Medical Association that under no condition or contingency will the Minnesota State Medical Association pay any sums awarded in settlement, compromise, or by any verdict against any member sued for alleged malpractice, and each member applying for the services of the attorney of the Association in any malpractice case, shall agree not to obligate in any manner the Minnesota State Medical Association or any persons connected therewith to the payment of any sums whatsoever for any purpose.

Fifth: The Minnesota State Medical Association will assume the defense in a suit for malpractice against a member only when the cause for the alleged malpractice occurred subsequent to the date on which the member joined the Association.

Sixth: This chapter shall be in force on and after April 1st, 1910, and the year shall end on the last day of December of each year.

CHAPTER XII—AMENDMENTS

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session, after the amendment has laid on the table for one day.

THE NEW PUBLIC HEALTH—TENTH PAPER

THE NEW PUBLIC HEALTH AND TUBERCULOSIS

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LONDON, ONTARIO, CANADA

Previous articles have outlined the general principles which govern modern public health efforts. The present article will show the specific applications of these principles to one specific infectious disease, namely, tuberculosis. This disease is selected because the same principles that apply to all other infectious diseases apply to it and because it is the most important of all the diseases now recognized as really *preventable*, with the possible exception of the venereal diseases.

Tuberculosis, of all forms, is due to the growth, somewhere in the body, of a certain germ, exactly as diphtheria and typhoid are due to the growth, in the body, of certain germs. There are many very definite individual differences, in the size, shape, manner of growth, etc., of the three different germs of these three different dis-

eases, and these differences make it perfectly possible to distinguish each germ from the others, just as any farmer can distinguish oats, corn, and potatoes from each other.

But just as there are different varieties of potatoes, so there are at least two varieties of tuberculosis germs which affect human beings. One variety is what is known as the human tuberculosis germ proper. The other is found chiefly in cattle and is therefore called the cattle tuberculosis germ (the bovine tuberculosis germ), and this name is given to this variety even when it is found in the human, as it sometimes is.

HUMAN TUBERCULOSIS

A most important difference that the germs of human tuberculosis, of diphtheria, and of typhoid fever show amongst themselves is not a difference in size, shape, etc., but in the parts of the body each selects. Thus the diphtheria germ flourishes chiefly in the nose and throat, and the typhoid germ flourishes chiefly in the intestine and perhaps the blood; while the human tuberculosis germ will flourish almost anywhere in the body, glands, bones, joints, intestine, kidney, brain, lungs. This selection is no mere accident, although we do not know how it comes about. All three germs enter the body chiefly by the mouth, conveyed thereto chiefly by the *hands*, but also more or less through food and milk, and, in the case of typhoid fever, through water and flies. On entering the mouth, all three germs, which are of course far too small to taste or feel, are swallowed in the food, milk, etc., in which they happen to be present, or merely in the saliva, if, as is most usual, they reach the mouth directly or indirectly from the fingers. Once swallowed, all three pass into the stomach, where many are killed by the acid there present, the survivors, if any, passing on into the intestine. On the journey from mouth to intestine, some are left, of course, by the wayside, stranded on the tonsils, throat, gullet, etc. Here at once is shown their respective peculiarities. Of all the diphtheria germs that are thus swallowed, practically only those that are stranded in the throat, will flourish; those diphtheria germs which pass on into the stomach or intestine are destroyed or pass out harmlessly. On the other hand, typhoid germs, if stranded on the throat, do not flourish there, nor do those which reach the stomach flourish in that organ. It is only those typhoid germs which survive the journey until the intestine is entered that can succeed in producing typhoid fever. The human tuberculosis germ has a still longer road to go. Not only must it pass mouth, stomach, and intestine, but it must be also absorbed from the intestine into the blood, as the food is; but it does not grow in the blood. The blood is only a river, by which it can be carried to a favorable developing ground. We do not know at all why human tuberculosis germs entering the blood thus, should elect to settle and grow in a joint in one person, in a lung in another, in a kidney or a gland or a bone in another. However, this is the way in which these different forms of human tuberculosis develop. The old idea that human tuberculosis of the lung (consumption) is contracted chiefly by breathing the germs directly into the lungs, has been definitely upset. The lungs are infected from the blood-stream chiefly, just as are the other internal organs, bones, and joints.

Another and, from the public health standpoint, an even more important difference exists. Diphtheria germs developing in the throat, and typhoid fever germs developing in the intestine, can readily escape from the body: in the case of diphtheria, through the mouth and nose discharges; in the case of typhoid fever through the bowel, and sometimes the bladder, discharges. It is the escape by these channels of these germs from the body which makes these diseases "catching" or "infectious" or "communicable," for if they could not escape from the body they could not reach other persons and therefore could not be "catching." But in human tuberculosis, most of the places where it develops,—bones, glands, joints, etc., — are not connected with any opening of the body by which the germs may leave the body. These forms of tuberculosis have no great highway to the outside lying at their doors to carry the germs out to other persons. Practically only in human tuberculosis of the lungs are such highways provided for the human tuberculosis germs, although sometimes in bladder, kidney, and intestinal tuberculosis. But in the latter forms, the germs do not, as a rule, pass out by the highways provided for them in such condition or such numbers as to be of serious importance in propagating the disease. In human lung tuberculosis, on the other hand, the windpipe, throat, and mouth form a highway, along which the germs may escape from the affected lung in such enormous numbers that twenty-four billion per day have been detected in the discharges (sputum) from the lung of a single advanced case, although the average number from

the average case is usually "only" four or five billion daily.

Thus it comes about that human tuberculosis of the lungs is the only common form of human tuberculosis which is much to be feared as infectious. Practically all the other forms of human tuberculosis are derived from the sputum of cases of human lung tuberculosis, carried chiefly by mouth-spray and on the hands, and if cases of human lung tuberculosis did not act to spread infection to other persons, all forms of human tuberculosis would disappear.

Moreover, even human lung tuberculosis is not very infectious in the early stages, i. e., when the germs are growing in the lung tissue, but have not yet reached the air-passages, because, until then, the germs cannot escape into the windpipe and so by the throat to the mouth. When in the later stages the germs reach the air-passages the way for the escape of the germs to the outside and so to other mouths is "open." Persons in this stage of tuberculosis are called "open" cases, and it is therefore only the "open" cases that are seriously to be feared as infectious.

THE ABOLITION OF CATTLE TUBERCULOSIS IN THE HUMAN

Although the cattle tuberculosis germ differs from the human tuberculosis germ somewhat in size, shape, etc., the most important public health difference is this: the cattle tuberculosis germ seldom produces lung tuberculosis in the human. It produces bone, gland, joint, etc., tuberculosis, but lung tuberculosis hardly ever. Consider how important this fact is. It means that *cattle tuberculosis existing in a human can very seldom be conveyed from that human to another human.* In other words, cattle tuberculosis may be transmitted from cattle to man, but practically is not further transmitted from man to man. To prevent cattle tuberculosis in the human, we do not need to take into account existing cases of cattle tuberculosis in the human, but only existing cases of cattle tuberculosis in cattle. If we free our cattle of cattle tuberculosis, we shall free our humans of cattle tuberculosis also; and this is the only practical way that cattle tuberculosis in the human can be abolished unless and until the human race abandons the use of raw cow's milk.

THE ABOLITION OF HUMAN TUBERCULOSIS

How can we abolish human tuberculosis? Exactly as we can, and some day shall, abolish any and all other infectious diseases, by killing off the germ that causes it, exactly as we have almost abolished the race of buffalo by killing off the existing buffalo. We know well enough that when the last buffalo is dead, no man, however wise, no government, however powerful, could ever produce another buffalo. So, once the existing diphtheria or scarlet fever or tuberculosis germs are all dead, there is no way under heaven by which these particular germs could be produced again. Those which exist now are not evolved from dirt any more than are buffalo or roses. Those which are living today are simply the descendants of those which existed yesterday and so on, just as in the case of buffalo or roses, back to the dawn of history. Once any race or plant or animal is wiped out, it can never be redeveloped; and the tuberculosis germ, just as well as the germs of diphtheria or typhoid fever, can be abolished exactly as the megatherium or dinosaur has been abolished, i. e., by the killing of the existing individuals.

"But consider the enormous numbers and the tiny size of germs and that they are present *everywhere*,—in air, water, food, milk, dust; in and on everything we touch or taste or handle. It is quite impossible to kill them all."

True, *germs* are everywhere but *not disease germs.* We know some fifteen hundred or more species of germs and hardly fifty of these produce disease, while only two, already mentioned, produce tuberculosis in the human. That these are very small and cannot be slaughtered individually like buffalo, is true, but it is also true that their very minuteness means that billions can be slaughtered in one operation, if they are only kept together. As to tuberculosis germs being everywhere, all over, outdoors and indoors—this is *not* true. No more important fact in public health has ever been formulated than this, due to that keen leader in public health, Chapin of Providence: *The germs that produce disease* are *not* ubiquitous, *not* in dust everywhere, water everywhere, milk everywhere. They are chiefly, almost wholly, *in the bodies* of a few (relatively) people, or animals; and when they escape from those bodies, where alone they find the peculiar food, high temperature, abundant moisture, and darkness which they need, they promptly die or become harmless. Even in water, milk, food, etc., into which they may be introduced from infected persons, their lives are short, and they must quickly reach a new living victim, or die.

To abolish any one race of disease germs is far easier than to destroy some much larger things. Thus to abolish flies means not only killing all flies, indoors in all houses everywhere, in all stables everywhere, in and around all dwell-

ings everywhere, but also throughout all fields and forests, mountains and valleys everywhere, because flies are hardy outdoor beings as well as indoor beings. They can breed and flourish almost anywhere, where any kind of food, even in vanishing quantity, is to be had. Moreover, they can move of their own volition with promptness and despatch, have quick eyes and quicker wings to escape designing enemies, and in a thousand ways can take care of themselves.

Disease germs, in contrast with the fly, are very tiny and helpless particles of protoplasm, having no eyes to see an enemy, no nose to smell him, no means of running away from him. They cannot flourish on almost any food, but need the living tissues of the human body; they cannot grow at almost any temperature, but must have the heat of the human body. In brief, they are not merely indoor plants: they are incubator plants and cannot grow, thrive, or reproduce themselves in nature, except in the incubators—our bodies, or, in a few cases, animal bodies, provide them. Hence if we were able to take a visual census of all the living tuberculosis or scarlet fever or diphtheria germs in the world we should see them, not in the dust everywhere, the water everywhere, the food everywhere, etc., but in a very few places only, and those places would be, in almost all cases, the bodies of humans (or animals).

Indeed, we can foretell just about what the census of tuberculosis germs in Minnesota, or in any other district of the temperate zone, would show. It would show about one person in every seven hundred of the population carrying a large number of active, living, growing germs in the lungs,—germs that were escaping to the outside and reaching other persons' mouths. It would show also a number of other persons in whom the germs were present in joints, bones, glands, etc., but not escaping to others; and it would show a number of persons affected in the lungs, and, later, likely to develop to the point where the germs could escape, but practically harmless to others so far. Beyond this, hunt high, hunt low, search garbage barrels, manure heaps, dead animals, dusty streets, sewage, water, foods, milk, etc., and human tuberculosis germs, alive, growing, capable of producing the disease, *would not be found.* True, in the immediate neighborhood of the "open" cases the sputum they throw out, their mouth-spray, and their hands would show the germs, and things they spit into, mouth-spray into, or touch, would show for a short time a few; but these would be dying or already dead, holding out danger to other persons only during the short time which elapses between leaving their happy homes in the human lung and death outside from starvation and drying. This applies, not to tuberculosis germs alone, but practically to all the germs of the ordinary infectious diseases, anthrax and tetanus forming two chief exceptions, both rare diseases here.

No person energetic enough to advocate the abolition of flies should hesitate a moment to advocate the far simpler, smaller, easier, and far more important work of abolishing the germs that alone can make the fly a danger.

In brief, the method, and, I believe, the only rapid, complete, effectual method of abolishing human tuberculosis, is this: find the "open" cases and prevent the spread from them of the germs they alone throw out in numbers and condition to be feared. That means, find the one person in every seven hundred whose infection threatens all the rest, and supervise him just enough to keep his discharges from entering other people's mouths.

How is this one person in every seven hundred to be found? Not without hunting, not without ingenious, skillful, deliberate, sagacious, well-trained hunters, epidemiologists as devoted and persistent in their work as the average insurance agent is in his,—men who devote themselves to the abolition of tuberculosis as whole-heartedly as any merchant does to making money.

And how? Where shall we begin? Must we canvass the whole population one by one? True, that would do it, but epidemiology has found a simpler, keener, more scientific, far more economic plan, illustrated for typhoid fever in a previous article of this series (No. 3). Begin with the known cases and search the zones of infection surrounding each for mild, unrecognized, and concealed cases. (In tuberculosis the search for carriers is probably unnecessary, certainly at the present time.)

"But why not concentrate on the incipient lung case, the case that may be cured, and by preventing this case from going on to the "open" infectious stage get rid of danger to others thus, instead of by attention to the open case?" For several reasons, the abolition of tuberculosis through care of incipient lung cases only cannot at present be accomplished:

1st. Because incipient cases, in the truly incipient "non-open" stage, are discovered, perhaps are discoverable, in a very small percentage only of their total number.

2nd. Because a large proportion of the in-

cipients so found would *not* go on *in any case*, whether found or not, to the open stage; and the time and money and efforts spent in finding and supervising them would have been relatively wasted.

3rd. Because a certain proportion of the incipients so found *would* go on, *in any case,* to the open stage, and thus become infectious cases, despite all efforts. In these alone would the efforts expended be of service in preventing new cases. The trouble is that, in the incipient stage, it could not be determined whether or not the case would so develop.

4th. Because the time and attention devoted to incipients, to prevent them becoming open cases, would imply, as it has, alas, so far implied, neglect of the advanced "open" cases, in which the danger of infection is so immensely greater.

5th. Because if all the incipient cases were discovered they would form a mass of persons so great as to be beyond handling properly by any at present even dreamed of force of attendants, etc. If, as at present, only a very small proportion were found the actual situation would not be materially changed.

"Would you then cease the care of incipient cases in sanatoria, such as that at Walker, Minn., and concentrate wholly on the advanced case?"

No. First, because the tuberculosis sanatoria, intended though they are for incipient cases, really handle very many "open" cases, and to that extent prevent new infections; secondly, because the tuberculosis sanatoria do, in a measure, fulfill their proper function of cure for incipients and even early "open" cases to some extent and hence save life. But as a means of *abolishing* tuberculosis, the ordinary tuberculosis sanatorium for incipient cases is quite hopeless.

The thing to do first is, find the recognized "open" cases, whether they be in early, advanced, or late stages, and place *them* where *they* can spread the disease no further. Then search the "zones of infection" surrounding them, i. e., their relatives and associates, for mild, unrecognized or concealed cases, and also for incipients, handling all "open" infectious cases thus found, in the same manner. This system would begin at the right end by stopping further infections, and would incidentally find those early "open" and "non-open" incipient cases wherein sanatorium treatment would be of most avail.

SUMMARY

Tuberculosis is a typical infectious disease, and it must be handled on the same principles as any other infectious disease; hence, by blocking the routes of infection, but chiefly by finding the *sources* and preventing spread thence.

Of the five great routes of infection,—water, food, flies, milk, and contact,—human tuberculosis travels chiefly by contact, through sputum, mouth-spray, and hands, directly, or almost directly, from patient to prospective patient. Practically, it is spread exactly as scarlet fever or diphtheria is spread. Public flies and public food supplies are comparatively insignificant conveyors. Public water supplies are almost negligible, and public milk supplies act chiefly in conveying cattle tuberculosis to man, although, if the milk be handled by tuberculous humans, it may convey human tuberculosis also.

It is evident, then, that blocking of routes, since the chief one is contact, involves chiefly the far more important measure of finding the source, just as in scarlet fever, or diphtheria, etc., and if these sources are found and prevented from access to the routes, the routes may be disregarded. The measures for finding the human sources, practically the "open" cases of *lung* tuberculosis in the human, are epidemiological and have already been discussed in principle before (Article 3).

The measures necessary for finding the animal sources (infected milch cows) are the well-known tuberculin test of herds, with proper repetitions, and the elimination of the tuberculous animals. Serious enough as cattle tuberculosis in the human is, its prevalence, nevertheless, is so much less than that of human tuberculosis and its infectiveness in the human is so nearly negligible, if our efforts were concentrated wholly on human tuberculosis more cases and more deaths would be prevented, in a year's work, than efforts on bovine tuberculosis, however successful, could possibly achieve in many years.

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SURGERY FOR CRIMINALS

Not long ago the newspapers were blazing with news of reformations of the criminal and retarded classes by surgical operations. Various surgeons in various cities took up the problem, with the aid of reporters, and the announcement was made that boy So-and-so suffered from a fall ten or fifteen years previously, and, as a consequence, his mental gear-case worked badly. This condition found ample illustrations from the juvenile court habitués, and after profound consideration by the court and two or more surgeons, the boy was sent to a hospital to have an old depression in his skull lifted, with the hope that he could mend his ways, and be restored to the social status of former days. The object was accomplished—temporarily. The lad submitted to an operation rather than a reformatory sentence. He enjoyed the publicity of his spectacular release; and the over-attention of his surgeon and the nurses infused him with the idea that he had committed an offense only because he was suffering from a "brain clot," a previously "fractured skull," and that he was in no way responsible for his acts.

After a period of two or three weeks of nursing, dressings, and bandages, he returned to his home, if he had one, like the prodigal son. He was feasted, petted, and spoiled. His ego was tremendously stimulated, and he eventually sauntered forth to mingle with his former associates. He became an object of the adoration and envy of his old-time friends, and he soon regained his leadership with the expected results, —a return to the old habits of evil doing and, later, a subsequent arrest for his new ventures in crime. He had simply been halted for a few weeks until the time came for a resumption of his inherent tendencies.

The effort to change a crook into an honest man by surgery had not gone to the root of his troubles. His environment, surroundings, and associates had not changed, and no real effort was made to put him in a field free from temptation. The after-treatment of the criminally inclined individual is of more importance than a prison sentence or a surgical operation, yet no one familiar with work of this kind is at hand to help the boy or man when help is most needed.

The physician or surgeon is trying to do wonders by methods that do not consider the question broadly. They hope for the miraculous without due consideration of previous or after-conditions.

Men in prison have been operated on for seemingly pathological states, and, through the offices of sentimentally interested persons, have been granted their liberty with the idea that a cure has been effected. Surgeons have had their names heralded through the press, and for the moment are in the limelight. The light soon fades, and judges, doctors, and criminals are forgotten until the supposedly cured case has lapsed into his former and natural state of existence.

An illustration of this occurred recently in Buffalo, N. Y. Grimmel, a criminal, was sent to prison many times for thieving and forgery. It was shown that he was an exemplary school-boy up to fourteen years of age. He was struck over the head about this time, and his skull was fractured. His mental state changed from a quiet, natural condition to one of moroseness and intrigue. After repeated sentences he began to study himself, and finally evolved the theory that there was a cause for his criminal proclivities. He sent for a surgeon, gave the man a diagnosis, and had his head opened. After a period of time society, stirred by the recitals, took a violent interest in him and secured his release. Now he is back again in prison convicted as a leader of burglars. Evidently, from his own statements and his convictions, there was a latent criminal tendency which became fully

developed at the age of puberty and following an exciting cause, namely, a blow upon the head.

These histories have been repeated often, and occasional criminals have been clever and cunning enough to excite sympathy and surgery. Does it really pay to experiment on these cases? Perhaps one cure out of one hundred cases justifies the attempt to reform the convicted boy, or man, by radical means, but it would seem safer to investigate fully the causes and conditions which lead to crime. Then, if the circumstances warrant an operation, and the crime is not too long after the injury, an operation may be done, but the reformatory education should be completed before turning the criminal loose.

MINNEAPOLIS' PURE WATER

The new and modern filtration-plant recently completed and in operation, is now supplying the citizens of Minneapolis with as pure water as can be furnished to any city from any large river. In addition to the treatment of the water from the Mississippi by the filtration process, it is further purified by an automatic supply of hypochlorite.

It was feared by the timid and the doubter that the introduction of chemicals would be deleterious in some way. For a time there were complaints that the hypochlorite caused an unpleasant odor to the water, and that it was also responsible for certain skin irritations.

It is quite probable that, in the early use of the hypochlorite, too much of the chemical was used, and perhaps it added to the odor which is commonly present when the water supply is low and contains the decompositions incidental to decomposed plant and animal substances which lie near the bed of the stream. For some months no complaints have been heard about the odor of chemicals, as the adjustment of the supply has been regulated to a nicety.

To those who fear they will consume more hypochlorite than is needed for comfort it is only necessary to state that the ordinary dose of hypochlorite is five grains. In order to acquire that amount from the city water, it would be necessary to drink *fifty-eight gallons of water*. If the average person drank fifty-eight *ounces* of water daily it would take one hundred and twenty-eight days to get the minimum dose of the chemical, and at this rate the consumer would get about fourteen grains of hypochlorite in the course of a year. No danger, therefore, exists in the drinking of water from the Minneapolis plant.

The use of hypochlorite for the purification of sewage is under trial in Minnesota, and it is hoped that the experiments will soon prove that such treatment of sewage will make it reasonably safe to empty sewers into streams freely and with the minimum amount of danger. If such facts be proven, stream-pollution will be a thing of the past.

THE ROSTER AND THE CONSTITUTION AND BY-LAWS OF THE MINNESOTA STATE MEDICAL ASSOCIATION

We publish in this issue the Roster of the Minnesota Association with such errors and omissions as the proof-readers and secretaries will always claim as their own. There are so many twists in the spelling of proper names that perfection in a printed list of any considerable size is quite out of the question; and so we urge upon our readers who have any grievance because of the way we refer to them in the Roster, to communicate with us, but to be careful how they write the letters correcting our mistakes. The secretaries might also take a hand in this revision and help us to get out a perfect roster—some day.

A far more important matter is the Constitution and By-Laws, which, we can assure our readers, is up to date. It especially tells all about the medical defense feature of the Association; and as damage lawyers find a congenial culture-medium in our profession, it is well that every member of the Association know how to meet the first symptoms of their appearance. Our exchanges show that these microscopic fellows are very active in the Northwest today. They keep shy of lawyers trained to meet them on first appearance, and the Association employs such trained legal gentlemen.

MISCELLANY

TUBERCULOSIS LEGISLATION IN MINNESOTA

Important public health legislation now being considered at the state capital proposes to provide much-needed institutions for the segregation of advanced, and the treatment of early, cases of tuberculosis. Two years ago the governor appointed a special commission to study the conditions in Minnesota with regard to this disease. This commission was composed of Dr. E. L. Tuohy, Duluth, (President); Dr. H. L. Taylor,

St. Paul; Prof. J. T. Gerould, University of Minnesota; Dr. G. D. Head, Minneapolis, and Dr. Walter J. Marcley, Minneapolis, (Secretary).

This commission has sent a letter to every legislator in the state, setting forth the needs and the legislation necessary to meet those needs. The letter is as follows:

LETTER TO LEGISLATORS

The State Tuberculosis Commission, appointed by the Governor in 1911, has made a careful study of the conditions in this state regarding tuberculosis.

This is a disease of the home and other places where continuous contact with an infectious sick person exists. Over 2,000 residents of Minnesota succumb to this disease annually, year after year. We believe that three-fourths of these deaths can be prevented. This estimate is based on actual reductions of the death-rate in progressive communities in Europe and the Eastern States of our country.

The infectious, far-advanced consumptives must be removed from their dwelling places and placed in institutions where they can have treatment with the hope of benefit to themselves and where the spread of the disease will be checked.

The Minnesota Association for the Prevention and Relief of Tuberculosis has been carrying on an educational campaign in the state for almost five years. The people of the state are ready to heartily endorse legislation to prevent the ravages of tuberculosis.

These exists a Minnesota statute, passed in 1909, allowing counties to establish sanatoria for tuberculosis, but thus far only two counties have established institutions under this act (St. Louis and Ottertail). Five other counties have appropriated for this purpose maximum amounts allowed by the law, but these sums are not adequate to begin the work. It is necessary to give state aid to counties.

The state has recognized its obligation toward the insane. Its duty toward the tuberculous is certainly as great, for adequate institutional care means prevention as well as cure.

This Commission has prepared a bill as an amendment to the existing law above referred to. We also would amend the statute establishing the State Sanatorium at Walker simply for the purpose of changing the name and the personnel of the Advisory Board of the Walker institution and in order to place the new county institutions under this Board.

A summary of the two amended bills is as follows:

1. A change in the make-up of Sanatorium (Walker) Advisory Board so it will include Ex-officio Secretary State Board of Health and also a person not a physician, but with special knowledge of the administrative control of tuberculosis.

2. This board must approve site and plans of county sanatorium in any case and if state aid toward maintenance is desired ($5 a week per free patient), also its conduct.

3. Depositing of money of county appropriated for first cost of institution with State Treasurer who adds as much more.

4. Building of institution by State Board of Control.

5. Management and maintenance of the institution by special unpaid local board appointed by the County Board of Commissioners.

6. Optional union of several counties in "acquiring, establishing, equipping and maintaining such sanatorium."

7. Optional purchase of supplies for the county institutions by the State Board of Control.

8. Financial reports to State Auditor and financial examination by Public Examiner.

9. Fixing a charge for pay patient by the local board.

10. Free treatment when patient is unable to pay or has no kindred legally liable.

11. Admittance of all stages of the disease and of non-residents of county by special agreement.

12. Private donations and bequests.

13. Reimbursement of counties already having established institutions, but nothing toward previous maintenance.

14. A special state tax levy for four years, yielding approximately $400,000 a year. (It may be best to appropriate a definite sum to start the work and provide for income from a tax levy to meet requirements as they arise.)

15. No institution under 20 beds.

This Commission also recommends an appropriation to put the State Sanatorium near Walker in proper working condition.

We respectfully invite your consideration of these bills, and should be glad to receive any criticisms or suggestions which you may make.

We ask your valuable support in this effort to prevent the spread of this universal and preventable disease.

Respectfully yours,

E. L. Tuohy, M. D., President.

Walter J. Marcley, M. D., Secretary.

State Tuberculosis Commission.

The medical profession of the state should lend its aid to the passage of this legislation, especially since much less effective bills have been introduced, and their passage might delay the ends sought by the Tuberculosis Commission, which has given so much study to the problem.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

A regular meeting of the Academy was held at the Town and Country Club, January 8th, twenty-five members and three guests being in attendance. Vice-president Dr. Schwyzer presided. The name of Dr. J. S. White, of St. Paul, was placed in nomination for active membership by Drs. Stumm, Rothrock, and Sneve. It was referred to the Executive Committee.

Dr. L. C. Bacon reported a case as follows:

I wish to call attention to a recent case, with interesting features: A spinster, fifty-two years of age, was suddenly seized with intense pain in lower right abdominal quadrant. There was distention, with a large area of dullness; palpation was unsatisfactory; no vomiting; temperature,

normal; the bowels were evacuated during the day; the pulse was very good. On the second day the pain and area of dullness had shifted to the left lower quadrant of the abdomen, the other conditions not varying much. On the third day there was a slight rise in temperature, and on the fourth day an incision disclosed a pedunculated, strangulated uterine fibroid. The pedicle, of about three-fourths of an inch in diameter, had become divided, and the fibroid was lying free in the abdominal cavity.

The points of interest were the diagnostic features of the case and the remarkably short space of time in which maceration and separation of the pedicle could occur.

Dr. Colvin read a paper on "Fractures of the Lower End of the Tibia and Fibula," and illustrated the subject with illuminated skiographs and with photographs.

Dr. C. H. Mayo, in discussing the subject, stated that fractures of this class occurring in young people, do well, as a rule, but that in persons past forty years of age, and especially those who are heavy, the results are apt to bad.

Dr. H. B. Sweetser thinks that when results are bad, they are very bad. He cited a case in which the tip of the internal maleolus was broken off and embedded in between the end of the tibia and the astragalus. He had opened the joint and removed the fragment; but then had experienced great difficulty, even with compound pulleys and the cutting of ligaments, to force the ankle back into position. He thinks, however, that excellent results may be obtained in most cases, even without the use of the *x*-ray, if great pains are taken to invert the foot and to be sure that flexion and extension are secured.

Dr. A. Schwyzer emphasized the point that it is absolutely necessary to individualize the cases in this class of injury. Each case that Dr. Colvin has shown possesses the characteristic features of its class, and each case must be treated in accordance with these features. He cited one case in his experience wherein he simply squeezed the parts laterally into place, instead of using the method of inversion of the foot, and with good results.

Dr. Colvin, in summing up the discussion, emphasized again the necessity of handling each case according to its special condition. He reiterated the statement that Potts' fracture is a rare one, and the term should be applied only to those cases which Potts classifically described as occurring "one and one-half inches above the joint, with rupture of the internal lateral ligaments." The text-books do not make the proper distinction in this matter, for in the English literature, especially, all fractures above the ankle are classed as Potts, whereas but a small percentage of them are really such, and the treatment is radically different in each type.

Dr. Walter R. Ramsey then read a paper entitled "A Further Study on the Subject of Pyelitis and Pyelocystitis in Infants and Children."

Dr. J. P. Sedgwick, of Minneapolis, a guest for the evening, was called upon to discuss the subject. He believes that the frequency of this occurrence has not been known until recently. It is not uncommon. In fact, he thinks that it is more common that otitis media. He spoke of the difficulty in collecting specimens of urine, especially from female infants. There are rubber collectors, and there are metal ones made to fit on over the vulva; but both have the objection of not being easily obtained when wanted. A simple outfit may be improvised by the use of a test-tube, a rubber-glove finger, and strips of adhesive plaster. Or the test-tube alone may be used by cutting a slit in a strip of plaster, inserting the test-tube through it, utilizing the flange at the top of the tube to secure it, and fastening over the vulva by means of plaster.

The cause of the infection is probably the use of diapers and the bathtub, the bacilli finding their way from the rectum into the urinary tract through these routes. However, in his experiments on guinea-pigs, by putting diapers upon them for several weeks together, he had been unable to produce the disease in that animal. He pointed out the necessity for establishing a normal standard for urine as to the number of bacilli present, since no standard has so far been adopted.

In the treatment he advises the washing out of the urinary tract from above by the copious use of water rather than by irrigation from below. If the child will not take water enough otherwise, have the nurse use a stomach-tube, putting large quantities of water into the stomach. He considers this the most frequently overlooked disease in children.

Dr. Robertson spoke of the use of vaccines in these cases; but he thinks we are in the most hopelessly hopeful condition in this respect, for the whole subject of vaccines is on an unscientific basis, and our discouraging results are due to this fact.

Dr. Ramsey, in closing, said that sometimes urotropin, used in large doses, will produce an acute systitis, and also a rash at times.

A. W. Dunning, M.D., Secretary.

NEWS ITEMS

Dr. E. L. Hills has moved from Ashton, S. D., to Butler, S. D.

Dr. E. H. Grove has moved from Badger, S. D., to Bryant, S. D.

Dr. Archie McLaurin, a recent graduate of Rush, has located at Parkston, S. D.

The Belle Fourche (S. D.) Hospital, formerly the Green Cross Hospital, has re-opened.

Dr J. M. Riggs, of Buhl, has become a member of the Rood Hospital staff at Hibbing.

Dr. L. P. Larson, of Finley, N. D., was married last month to Miss Clara S. Linn, of Fergus Falls.

Prof. U. F. Jones, of the South Dakota University, at Vermillion, is giving a series of lectures in different parts of the state on sex hygiene.

Dr. H. O. Fjelde, who has practiced at Abercrombie, N. D., for over fifteen years, has moved to Fargo. He has recently spent several months in post-graduate work at Johns Hopkins.

Dr. Winifield S. Hall, of the Northwestern University, of Chicago, gave a course of five lectures in St. Paul last month on sex hygiene. He also gave a special address before the Ramsey County Medical Society.

A public reception marked the opening of the new Minnewaska Hospital at Starbuck on Jan. 21st. The hospital opens with the good-will of the people manifested to an unusual degree and apparently ready to do much for a hospital.

The Washington County Society held its annual meeting in Stillwater on Jan. 14th. The evening was given up to business matters and the election, which resulted as follows: President, Dr. D. Kalinoff; vice-president, Dr. A. H. Steen; secretary and treasurer, Dr. E. E. Wells.

The Carlton County Medical Society was organized at Cloquet last month, and will hold monthly meetings. The following were elected officers: President, Dr. S. O. Watkins, Carlton; vice-president, Dr. G. W. Dolan, Cloquet; secretary and treasurer, Dr. Alex. Barclay, Cloquet.

The competition among North Dakota cities for the location of the new Methodists' State Hospital, was so keen that the committee of the church decided to refer the subject back to the general conference, which meets in October. It is said that Jamestown offered a site and $15,000 in cash.

The Winona County Society held its annual meeting at Winona on Jan. 8th, and devoted the meeting to business and the election of officers. The following were elected: President, Dr. Oswald Leicht; vice-president, Dr. J. L. Lynch; secretary, Dr. H. F. McGaughey; treasurer, Dr. L. H. Munger.

The Brookings (S. D.) Hospital has been re-opened and is now in charge of the Methodists' Deaconess Association. The hospital will hereafter be known as the Dakota Deaconess Hospital. The building has been thoroughly renovated and refurnished, and will be kept up to the highest modern standard.

The Devil's Lake District Society, of North Dakota, held its annual meeting last month, and the following officers were elected: President, Dr. W. D. Jones, Devils Lake; vice-president, Dr. W. C. Fawcett, Starkweather; secretary and treasurer, Dr. G. F. Drew, Devils Lake; delegate, Dr. Clinton Sweet, Devils Lake.

At the annual meeting of the Grand Forks (N. D.) District Medical Society, which was held on Jan. 8th, the following officers were elected: President, Dr. H. M. Wheeler; vice-president, Dr. H. G. Woutat; secretary, Dr. G. F. Ruediger; delegates, Dr. J. E. Countryman and Dr. H. H. Healy; censor, Dr. John Montgomery.

The Waseca County Society held its annual meeting at Waseca on January 5th, when the following were elected officers for 1913: President, Dr. H. G. Blanchard, Waseca; vice-president, Dr. J. J. O'Hara, Janesville; secretary and treasurer, Dr. W. A. Meilicke, Janesville; delegate, Dr. Meilicke; alternate, Dr. J. F. Lynn, Waseca.

Dr. J. W. Robertson, of Litchfield, died on Jan. 14th, at the age of 61, following an operation for appendicitis. Dr. Robertson has taken an active part for many years in local medical societies, and was president of the State Association two years ago. He was also active in civic matters, and was mayor of Litchfield at one time. He recently built a fine hospital in Litchfield, which will be conducted hereafter by his son, Dr. A. W. Robertson.

The supreme court of Minnesota has upheld the action of the State Board of Medical Examiners in refusing Dr. Boyd T. Williams a license to practice, the refusal being based upon Dr. Williams' disregard of the ethics of the profes-

sion as regards the matter of advertising. Dr. Williams is a so-called "cancer doctor." The court took occasion to recommend that the legislature clarify the various laws governing the practice of medicine.

The Goodhue County Society held its annual meeting last month, at Red Wing. Dr. Charles Lyman Greene, of St. Paul, read a paper on "Some Unrecognized Factors in the Diagnosis of Heart Disease." Dr. A. E. Johnson, of Cannon Falls, presented a paper. The following were elected officers for the current year: President, Dr. H. L. McKinstry, Red Wing; vice-president, Dr. M. H. Cremer, Red Wing; secretary and treasurer, Dr. A. J. Conley, Cannon Falls.

At the annual meeting of the Hennepin County Society, Dr. George Simmons, editor of the *Jour. of the A. M. A.*, made a short address on the work of the National Association, and at a special meeting Dr. Simmons gave an illustrated lecture on "Quack Doctors and Fake Medicines." At the regular meeting, the following were elected officers: President, Dr. H. H. Kimball; vice-president, Dr. Geo. D. Haggard; delegates, Drs. A. S. Hamilton, H. B. Sweetzer, C. A. Reed, and H. L. Staples

The superintendents of the various training-schools in Minnesota have organized a state league to advance the interests of nursing education and to increase the efficiency of nurses and advance public health interests. The first meeting was held in October, and the league was completed last month with the following officers: President, Mrs. Francis Campbell, City and County Hospital, St. Paul; vice-president, Mrs. Louise M. Powell, University Hospital; secretary and treasurer, Mrs. Grace Watson, St. Barnabas Hospital, Minneapolis, and Miss Johnson, of the Red Wing Hospital. There are fifteen charter members.

The Mower County Medical Society held their quarterly meeting at the Fox Hotel, Austin, Minn., on January 8th. A paper entitled "A Therapeutic Retrospect," read by Dr. W. F. Cobb, of Lyle, was greatly enjoyed by all. Interesting talks were given by Drs. A. E. Henslin, C. F. Lewis, and G. M. F. Rogers. Dr. D. E. McBroom was admitted to membership by transfer card from the Rice County Society. The following members were present: Drs. W. F. Cobb and P. T. Torkelson, of Lyle; Dr. D. E. McBroom, of Adams; Dr. A. E. Henslin, of LeRoy; Drs. G. M. F. Rogers, C. F. Lewis, C. C. Allen, and E. C Rebman, of Austin

The Park Region District and County Society held its annual meeting last month at Alexandria, Several papers were read, and at the business session the following were elected officers: President, Dr. A. J. Gilkinson, Osakis; secretary and treasurer, Dr. A. M. Randall, Ashby; delegate, Dr. A. F. Gosslee, Deer River. The society passed resolutions commending the action of the postal authorities in the arrest and indictment of parties using the mails to advertise and sell articles and drugs for the purpose of producing abortion. The secretary was instructed to meet representatives from the Clay-Becker, Upper Mississippi, and Red River Valley Societies, and arrange for a joint meeting of these societies.

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The Fellows Co. of New York are sending gratis to the medical profession a pamphlet under the above caption which is worth while. Here is a page or so of cancer don'ts; a half page each of cardiac, gynecological, and gastric don'ts; two pages of genito-urinary don'ts; two of salvarsan and neo-salvarsan don'ts; and a half page of life insurance examination don'ts. Probably very few men could say that not one of these don'ts does not cover some of their failures.

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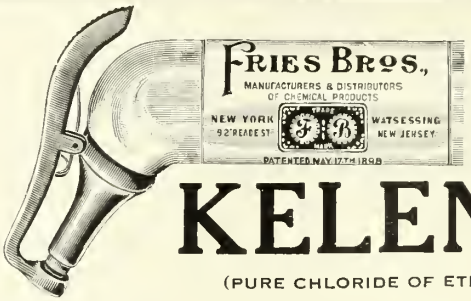

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THE DIAGNOSIS OF DISEASES ASSOCIATED WITH ENLARGEMENT OF THE SPLEEN*

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ROCHESTER, MINNESOTA

The following review of the diagnosis of the various forms of splenomegaly is introductory to a report of the clinical findings in a group of cases occurring in our experience in the Mayo Clinic, St. Mary's Hospital, which will appear later.†

Examination of the liver and spleen at the time of operation has stimulated the interest of the surgeon in diseases which have been hitherto regarded as entirely medical. This interest will result in additions to our knowledge of the relative functions of the organs of the upper abdomen and will eventually assist in making the classification of hepatic and splenic diseases more nearly definite. That one may be in the receptive mood it is necessary to become as familiar as is possible with the diagnosis of diseases associated with splenomegaly.

The exact degree of enlargement of the spleen is usually not determined until an edge is palpable below the costal margin. The fact that the outline of the spleen by percussion is uncertain because of its situation is not an excuse, however, for the more or less general carelessness exhibited in examining for the size of the spleen as a matter of routine. The spleen may lie high and be enlarged transversely, and in this event a definite splenomegaly may be overlooked. Perisplenitis is a frequent surgical and pathologic finding, and it is quite likely that clinical evidence of this condition is not obtained as often as it should be.

If a patient with a palpable enlargement in the region of the spleen present himself for examination, it is of course first essential to determine positively whether or not the organ be spleen. And this distinction is not always easy. The question will usually lie between spleen and kidney. If one can feel edge and notch, there is no difficulty, but it is sometimes impossible to demonstrate the characteristic contour. The edge of the spleen, like the edge of the liver, may at times be revealed by pressing the mass forward and toward the median line at the same time everting the anterior portion. Similarly, the organ may be pressed into the loin and its edge everted. Often the kidney may be demonstrated as a separate mass lying posteriorly. By these means a difficult diagnosis may be made simple. At times, however, the only certain method of arriving at a conclusion is by means of cystoscopic and pyelographic examination. The development of pyelography assures reasonably accurate information as to the existence of a tumor of the kidney, and pyonephrosis, hypernephroma, and cystic kidney have so resembled the spleen as to make a diagnosis impossible without this procedure, and perfectly definite with it. The position of the kidney as demonstrated by the injection of colloidal silver may be compared with

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

†An article by the author ("Clinical Observations Concerning 27 Cases of Splenectomy") will appear later in the American Journal of the Medical Sciences. Articles dealing with the surgical and pathologic conditions will be published by W. J. Mayo and L. B. Wilson in a forthcoming number of Surgery, Gynecology and Obstetrics. See also W. J. Mayo: Jour. A. M. A., 1910, LIV, 14-17.

the position of the tumor at the time of exposure, taking into consideration the focus used in making the radiograph.

Movable and *wandering spleens* are occasionally seen and, upon superficial examination, may be diagnosed as movable kidney. The spleen may descend as low as the pelvis. If, however, the occurrence of wandering spleen be kept in mind, the organ usually can be recognized by its contour. Two cases of wandering spleen have been operated on at St. Mary's Hospital. Another patient had been operated on elsewhere for movable kidney apparently as the result of a mistaken diagnosis. The kidney had been stitched up but the tumor, which, upon palpation, showed all the characteristics of spleen, remained as movable as before.

Upon first consideration it would appear that tumors of the stomach and intestine could not be confusing in the diagnosis of splenomegaly. During the last year, however, the writer has observed two cases in which a large carcinomatous mass could not be differentiated from enlargement of the spleen before operation. The absence of a history of gastric symptoms, negative findings on gastric analysis, the demonstration of an edge, and the location of the tumor led us to regard the tumor as most likely spleen, although the contour was not typical enough to warrant a positive diagnosis. One of these cases had been diagosed previously as splenic anemia by an internist of great experience. An intestinal tumor will more often stimulate the kidney than the spleen. The left lobe of the liver may be enlarged in such a way that its edge descends at the left costal border and is thus confusing. Omental tumors must be differentiated from movable spleen. If the splenic dullness can be definitely outlined by percussion, a diagnosis may be made by exclusion.

The spleen may be moderately enlarged for years without apparent injury to health. Osler[1] reports having seen a group of such cases in women without anemia and from no evident cause. On several occasions we have observed in Greeks a moderate enlargement of the spleen without complaint or indicative findings. Some of these doubtless had had malaria. Cabot[2] has noted that other peoples from Southern Europe present the same condition.

While a slight enlargement of the spleen seems to occur without harm, it must also be remembered that splenic enlargement sometimes precedes the development of anemia by several years' splenic anemia, and the spleen must be looked upon as a possible source of future trouble, especially if it be of considerable size. Its removal may then be considered.

The spleen may be temporarily enlarged in many of the *acute infections of childhood,* also in *rickets* and other forms of *malnutrition* in babes. The enlargement of the spleen which occurs with *typhoid fever, generalized tuberculosis,* and *malaria,* need only be mentioned. In connection with tuberculosis it must not be forgotten that a marked tuberculous enlargement of the spleen may occur without evidence of tuberculosis elsewhere. In some of the reported spleens, however, the tuberculous process seems to be less prominent than the general hyperplasia. One patient of this type was operated upon at St. Mary's Hospital in 1904 and made a good recovery, but died four months later. Franke[3] has collected ten such operative cases. It is not likely that this type of splenomegaly will be differentiated from splenic anemia unless tuberculosis can be demonstrated elsewhere in the body. The spleen of malaria has been removed when other treatment has failed to prevent the return of attacks. The diagnosis is usually made easily; in fact, there is a temptation to ascribe splenic hypertrophy to malaria when it may have no etiologic relationship.

Syphilis of the spleen should always be considered as a possibility in every patient with splenomegaly, and a Wassermann reaction can not be neglected in any questionable case. The frequency of syphilis seems to be quite generally appreciated at the present time, so that this error is less likely to occur today than it was ten years ago. Syphilitic cirrhosis of the liver with splenomegaly is of comparatively frequent occurrence, and the difficulty of obtaining a history of infection is notorious. Congenital syphilis of the spleen is not rare in children. There is, however, a *nonluetic cirrhosis* of the liver, which occurs in children; ascites and moderate enlargement of the spleen are present.

Primary sarcoma of the spleen is rare; the growth of the organ is rapid. Twenty-five cases have been reported and are reviewed in a paper by Bush[4]. Eleven of the 25 were discovered at autopsy, while in 14 splenectomy was done with four operative deaths. Two remained well for several years. Pathologists agree that a positive diagnosis of sarcoma of the spleen is often hazardous, and when recurrence does not follow there is a possibility that the tumor was in reality

a benign *lymphoma.* (Türk[5]; Sternberg[6].) One patient on whom splenectomy was done at the Mayo Clinic for what was morphologically lymphosarcoma has remained well for seven years. In another case a diagnosis of lymphoma was made, and the patient has remained well for a year and one-half. Clinically these two cases presented the syndrome of splenic anemia.

The *Gaucher type of endothelioma* of the spleen is regarded by some observers as a true tumor. Clinically, however, these cases may not be differentiated from splenic anemia, although Brill[7] has suggested certain points which may be of assistance in diagnosis. Three spleens of this type have been removed at St. Mary's Hospital. The clinical histories were those of splenic anemia.

Cystic spleen may be difficult to differentiate from cystic kidney and cyst of the pancreas. Cyst of an aberrant duct of the liver in the left triangular ligament has been reported. Cysts occur in the spleen in about three per cent of patients with hydatid disease. Of non-parasitic cases, 42 instances have been reported (Musser[8]). *Fibroma* of the spleen is rare. *Carcinoma* of the spleen is secondary and uncommon in occurrence. *Infarcts* in arterial disease and *abscess* in infectious diseases may cause splenic enlargement.

Pernicious anemia may be associated with enlargement of the spleen, and, if the blood findings be not typical at the time of examination, a diagnosis may have to be deferred. The spleen is usually not large, and in this there is a contrast with splenic anemia and Banti's disease. Occasionally the co-existence of a very large spleen and an atypical blood-count leads to a questionable diagnosis.

Lymphatic and myelogenous leukemia need only be mentioned as the blood pictures are pathognomonic. Care, however, must be taken if leukemia be seen in the aleukemic stage. It must not be forgotten that an enlarged spleen accompanies *polycythemia.* The term *pseudoleukemia* is indefinite and should probably be reserved for that condition in which lymphocytic infiltration of the viscera occurs without the characteristic blood changes of lymphatic leukemia. There is a low leucocyte count with lymphocytic increase, enlargement of the liver and spleen, and slight enlargement of the lymphatic glands. The microscopic examination of an excised gland shows hyperplasia. This condition often occurs in children and may be in reality some one of the other forms of anemia in which the blood picture has been altered by reason of its attack upon a youthful rather than an adult organism. The diagnosis of the diseases of the blood in children is very uncertain at best. Secondary anemias occurring with rickets, and congenital syphilis may give blood pictures suggestive of pernicious anemia, lymphatic leukemia, myelogenous leukemia, or splenic anemia[9]. Consequently, when an abnormal blood picture is obtained in an infant, the possibility of nutritional disturbances must first of all be considered.

Splenic anemia seems to be a fairly definite *clinical entity,* although many observers prefer to look upon it as a symptom complex. It is described as a disease of unknown origin, presenting a progressive enlargement of the spleen; a chronic course of from months to ten years and even twenty years; an anemia of the secondary type, generally with leukopenia; a tendency to hemorrhage, especially to hematemesis; a certain degree of pigmentation in the late stages; and a secondary cirrhosis of the liver with or without ascites. The histories of these cases seem to indicate that the splenic change is primary. Enlargement of the spleen may be present for years before the development of anemia. An absence of leucocytosis seems to be an almost constant finding. Leucocytosis, save after hematemesis, should therefore make one suspicious of some condition other than splenic anemia. The spleen is often very large, and in this it differs from the spleen of hepatic cirrhosis. In *cirrhosis* the liver-changes seem to precede the splenic enlargement, while the reverse is true in splenic anemia. In cirrhosis again the anemia is less marked, and an etiologic factor of cirrhosis may be present. *Hanot's cirrhosis,* presenting a moderately enlarged spleen, occurring in young people without a history of the usual causes of cirrhotic liver and accompanied by a chronic jaundice, should not be difficult of differentiation. In *hemochromatosis* the changes in the liver and the splenic enlargement are concomitant, and the deposition of iron pigment in the skin and viscera and, later, diabetes as a result of involvement of the pancreas, form a definite clinical picture. Splenic enlargement may also occur in *Hodgkin's disease.* In late Hodgkin's disease the splenic and hepatic hypertrophy may be prominent, while the size of the lymphatic glands may decrease and a leucopenia occur giving a clinical picture which at first sight may suggest splenic anemia[10]. The history of the early involvement of a group of glands, however, usually points the

way to a diagnosis. The excision and microscopic examination of a gland will often give positive evidence. In the *family type* of *hemolytic jaundice* with splenomegaly the jaundice may be absent temporarily, and the condition may thus be confused with splenic anemia[11]. *Acute infectious epidemic jaundice* (Weil's disease) would give no difficulty because of its clinically acute infectious nature. As previously noted, syphilis of the spleen must always be kept in mind and carefully excluded.

There is a group of cases simulating the clinical picture of splenic anemia and, in addition, presenting findings suggestive of an acute or subacute infectious process. The fever may be remittent or intermittent and accompanied by chills. Attacks may last two or three months at a time and may recur at intervals of several months, or the condition may be an acute one, giving a history of several months' illness. The size of the spleen and liver may be much reduced between attacks, and the patient may return to good general health. Leucopenia is present save at the time of chills and high fever. Blood cultures are negative, and no evidence of syphilis, malaria or tuberculosis can be detected. Two cases with these characteristics have been observed by the writer. Are these acute types of splenic anemia, or is the clinical course the result of phlebitis of the splenic vein, a condition which has been reported in the autopsy findings in certain cases? The condition may indeed be due to a more or less generalized chronic infectious process. In view of the fact that *kala-azar* with its enormous enlargement of liver and spleen may make its appearance at any time, it is imperative in cases of the foregoing type to examine the peripheral blood, the blood obtained by splenic puncture, or an excised cervical gland, for the presence of Leischmann-Donovan bodies.

In all, 27 splenectomies have been done at the Mayo Clinic, St. Mary's Hospital, from April, 1904, to July, 1912. Of these cases, 18 conformed most nearly to the group commonly regarded from a clinical standpoint as splenic anemia.

A review of the diseases associated with enlargement of the spleen impresses one with the fact that exhaustive examinations and complete notes are necessary if we may hope to arrive at a definite grouping of these obscure conditions. Pathologic and clinical information must be carefully correlated. Certain rare disorders must be kept freshly in mind. Laboratory findings must be utilized in the differentiation more liberally than is ordinarily necessary. One is repaid, however, by the unusual interest attaching to these diseases, especially to those that simulate the symptom complex of splenic anemia.

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ORAL INFECTION IN RELATION TO CONSTITUTIONAL INFECTION*

By Thomas B. Hartzell, M. D., D. M. D.

MINNEAPOLIS

It is remarkable that comparatively little attention has been centered on the mouth as a point of entry for infectious micro-organisms to the human body. The physician leaves the mouth and teeth to the dentist, and the dentist limits his work to repair of destructive processes in the teeth themselves, giving little heed to prevention of infections and paying still less attention to constitutional disturbances arising from mouth-infections, so that, between the two, the mouth has been greatly neglected in our efforts to positively settle the etiology of such diseases as pernicious anemia, arthritis deformans, etc.

The mouth is the most important of all avenues for the admission of infections to the body, for the reason that it offers greater opportunity for the lodgment of micro-organisms and because there are *lesions, ulcerating bleeding surfaces* ready for inoculation in 95 out of every 100 months. These lesions are painless and con-

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

cealed from the eye, but certainly present. The microscope proves that these bleeding surfaces have present upon them at all times the diplococcus of pneumonia, as well as staphylococci and streptococci and a great many other organisms whose significance is not yet established.

I wish to enlist your interest in this question of mouth-infections and to show the ease of bacterial penetration of the bone. I draw your attention to the following pictures, which show the exceedingly cancellous nature of the bone

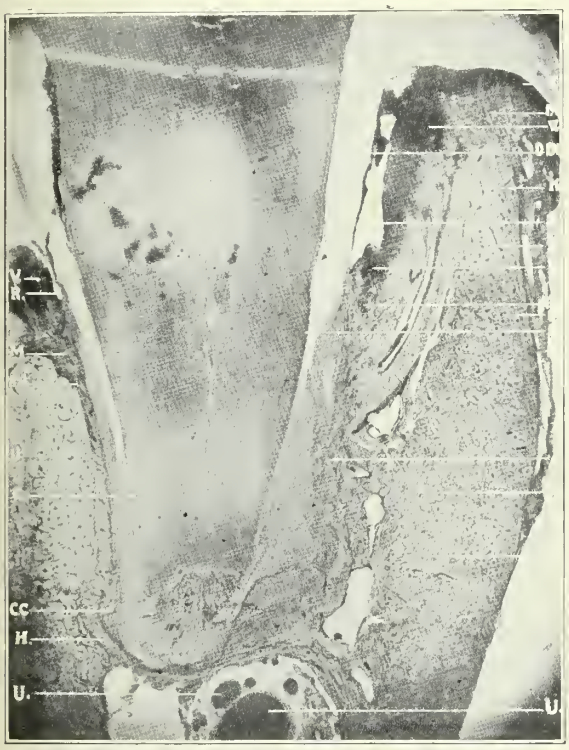


Fig. 1. From Talbot. Illustrating destruction of bone and shrinkage of gum exposing the neck of the tooth and opening the vessels of the gum to infection.

and, studied in conjunction with the active inflammation in the tissues contiguous to the teeth, illustrate clearly the ease of penetration of an infection into these tissues. To illustrate how infection, when once planted in the gum, must continue till surgically removed, I show photo-micrographs of root-surfaces to prove the bacteria-holding power of the root-surface when once infected after its ligament of attachment has been destroyed, because such a surface is porous and acts like a foreign body till curetted, as it is dead and loaded with bacteria. Next look at this picture of a tooth in situ and remember that the weight borne by the teeth in the average mouth is seventeen hundred pounds per day. Think of this in connection with the fact that pus or other micro-organisms confined in deep pockets about the teeth or in the bone at the root-ends of dead teeth must be injected into the ulcerating vascular tissues surrounding them. Think of these tissues with their great blood and lymphatic supply leading to deeper structures, and decide the questions. May not many of the unexplained infections of the past have been planted by this channel? Unquestionably, they have been; for, I believe, dental abscesses and suppurating pockets contiguous to teeth are responsible for more constitutional infections than any other single source.

It is possible to have an area of raw bleeding surface open to infection equivalent to five square inches in almost any mouth without much annoyance to the patient, nor can such an ulcer be seen. Such raw surfaces varying from one-fourth to one-half inch are so common that they are accepted by many as normal conditions.

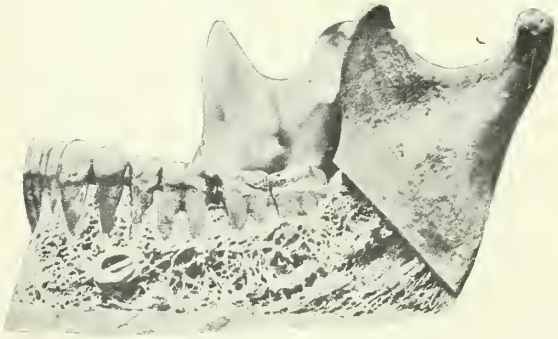


Fig. 2. From Cryer. Shows the extreme porosity of bone.

A careful student of pathology in general must inevitably arrive at the conclusion that the great majority of pathological lesions are due to the introduction of living bacterial organisms into the tissues, for the great diseases with which we are becoming more and more familiar are found to be dependent upon inoculation with either specific or mixed infections. Therefore, the first logical conclusion regarding these lesions of the gums and bone should be, *shut out infection;* first, for the specific reason that we wish to save our teeth, and, second, because any door of entry held constantly open for the introduction of living organisms into the circulation must be an enormous menace to the life of the individual. The penetrating character of all these types of bacteria, causative of these various diseases, is well known, and the greatest danger is a break in the skin or mucous mem-

brane. We ventilate our buildings with washed and strained air. We inveigh against spitting in the streets to prevent the lungs from picking up bacterial infections,—lungs guarded by tracheal mucous membrane armed with mucous glands to wash off, and cilia to whip out micro-organisms. We carefully scrutinize our food for fear we may pick up harmful organisms in that food which may gain an entry through some trifling break in the mucous membrane of the alimentary tract; at the same time we overlook, to a great extent at least, the largest door of entry for the introduction and inoculation of harmful bacterial infections,—a door of entry cunningly hidden from the eye and for that reason *doubly dangerous.*

The root-surface, when once infected, never

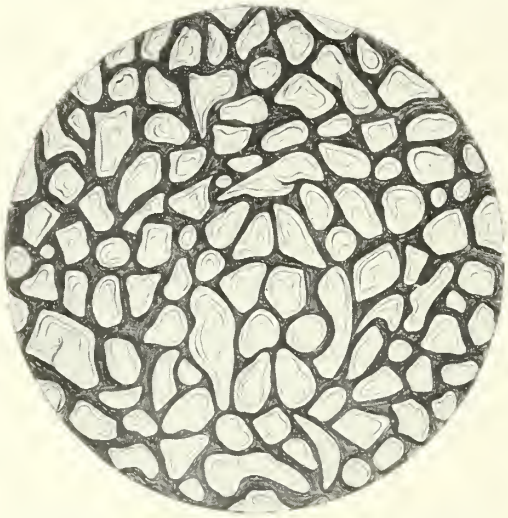


Fig. 3. Shows the porous nature of the root-surface, highly magnified, emphasizing its bacteria-holding power.

ceases to be a culture-bed until the tooth is finally extracted, or until that root-surface is robbed of its bacteria-holding power. While the leucocytes of the body can and do engulf and assimilate millions of bacteria for a considerable period of time, calling forth opsonins in opposition to harmful bacterial products, the leucocytes in time tire, and the creation of opsonins after a time grows less. Goadby aptly states this fact, "that small but considerable dosage with bacteria and their products from a local focus tends to gradually break down immunity." (*London Practitioner,* Jan., 1912, p. 109.) He states in the same article "that of many mouth-infections an exceedingly small local cause may produce suddenly generalized and widespread infection without apparent exacerbation of the mouth-disease preceding such infection."

In stating this truth regarding infections Goadby is discussing arthritis deformans in relation to mouth-infections. If the general surgeon knew that in most of the cases upon which he operates there exists in direct contact with bleeding vessels a dead surface loaded with bacteria, varying in extent from a quarter of an inch to five square inches, he would be horrified and would needlessly recommend the wholesale extraction of teeth, to prevent the possible infection and death of certain cases of abdominal surgery,—cases which seem uncomplicated but sicken and die, because resistance has been

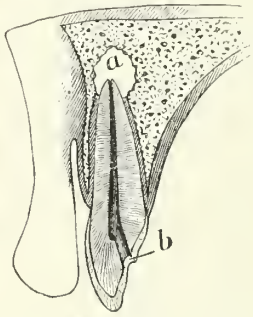


Fig. 4. Shows a blind dental abscess, pus accumulating at the root-tip in the body of the bone.

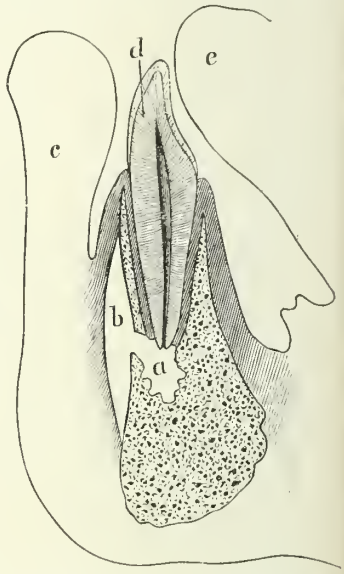


Fig. 5. With same dental abscess as in Fig. 4 at a later stage, the pus having penetrated the bone and accumulated under the periosteum.

weakened by long-continued absorption. Therefore, it is wrong to undertake grave surgical operations for persons whose mouth and gums are pouring a flood of micro-organisms into both stomach and circulation; first, because the vital resistance of such individuals is low, and, second, because of the direct spread of infection. In fact, it will come to be considered in time just as dangerous to operate when there is a septic mouth as to operate when the hemaglobin is less then 30 per cent; and the surgeon of the future is going to see to it that the mouth is normally clean before he begins to operate, except when emergency demands haste, and in that case he will swab the mouth with hydrogen dioxide and follow such preparatory measure with a

swab of iodine introduced directly in the pus-forming areas. Great prominence has been given the crypts of the tonsil as a culture-bed and point of inoculation for bacterial infection, and, indeed, the tonsil is frequently a point of entry for many types of infection. Alfred Mantel first pointed out, in 1887, the relationship of the tonsil as a point of entry to rheumatoid infection. Pointon and Payne, more recently, have published their researches proving Mantel's contention that rheumatism is streptococcic infection planted in the tonsil.

Dr. Frank Billings, of Chicago, in the *Illinois Medical Journal* for March, 1912, cites ten cases of multitple arthritis which were produced by streptococcic infection of the tonsils, pure cultures of which were obtained in these cases, which became free of joint disturbances upon enucleation of the tonsils. He also reports a case of arthritis deformans due to pyorrhea, and while it is undoubtedly true that the tonsil is a point of inoculation for streptococci it seems reasonable to believe that these streptococci were first fostered in deep pyorrhea pockets. He also reports subacute and chronic parenchymatous nephritis, due to the same streptococcus, which he finds in the tonsil.

The great majority of the medical profession seem to believe that the tonsil is a place to admit systemic infections and advise tonsillectomy and practice it with great success, but, nevertheless, few individuals suffer tonsil infections as compared to the vast number of individuals who suffer with the same character of infections in pyorrhea pockets. In the first place the tonsil is normally lined with columnar epithelium. The pyorrhea pocket is not so protected, but, on the contrary, contains a dirty root-surface heavily infected and constantly in contact with bleeding and broken blood-vessels; and therefore it is much more likely to introduce micro-organisms into the general circulation than is the tonsil. It is more likely to do this because the tooth itself must act as a powerful hypodermic syringe-plunger with every movement of occlusion. The teeth, bearing, as they do, an average according to Prof. Black of 1,700 lbs. per day of pressure, must, on occlusion, drive out into the circulation with each closure of the jaws the bacteria which multiply in the pyorrhea pockets, forcing these bacteria to scatter through the body of the jaw and enter the lymphatics, as well as gain direct access to the blood-stream through broken vessel-ends. This explains the foci of inflammation found scattered through the body of the bone in the studies of Talbot, Smith, and Znamensky; and it also explains the great prevalence of tubercular glands of the necks in children. The writer has three cases of septic endocarditis upon records traced directly to infection by way of pyorrhea pockets.

I wish to report a typical case of pyorrhea alveolaris to show how a septic mouth may maintain lesions in distant tissues.

Case 1.—Patient, male, aged 50. The molar and bicuspids in both lower and upper arches were freely movable in sockets, having lost the bone to about one-half of the original depth of the sockets; pus discharging freely from the sockets about the teeth; temperature, normal; specific gravity of urine, 1018; no albumin; no sugar. Patient reports a tender area in the stomach-wall.

Diagnosis: ulcer of the stomach, accompanied by chronic dyspepsia.

Patient has had treatment for ulcer of the stomach for two years with but temporary benefit. The treatment in this case was, first, extraction of two of the loose teeth which had lost the alveolar process, and planing of infected root surfaces. Result: absolute cessation of the pus-flow; the gums resumed normal tint; after two months no tenderness in the region of the ulcer; digestion, about normal.

Case 2.—Male, aged 48; chronic pain and tenderness in the masseter muscles of left side; tenderness of the sublingual glands and torticollis; tenderness of the left shoulder-joint.

Examination of the mouth revealed dead pulp in left lower third molar with free pus discharge from deep pyorrhea pockets. Left lower first and second molars contained vital pulps and had pyorrhea pockets one-third of the depth of the root; general pyorrhea of all the molar and bicuspid teeth on both sides of the mouth; chronic acid indigestion with constant eructation of gas after the ingestion of food.

Treatment: extraction of loose left lower eight; planing of the root surface of all the teeth affected by pyorrhea. Pockets were pencilled with tinct. of iodine. After two weeks the rheumatic pains in shoulder and tenderness of sublingual gland disappeared; digestion improved; at the end of the fourth week all inflammatory symptoms contiguous to the teeth absent; teeth no longer tender on occlusion; patient had resumed vigorous mastication of food; at the end

of two months all symptoms of dyspepsia absent.

This case is typical of a group of five cases in which joint involvements have been present from one to three years, and all disappeared upon the stamping out of oral infections.

In this connection I draw your attention to the report of a line of cases of severe mouth-infections accompanied by arthritis deformans, reported by Goadby in the *London Practitioner* for January, 1912, which cases were clearly traceable to mouth-infections and yielded to local treatment, reinforced by vaccines made from organisms isolated from the gum-infections.

Goadby was able to produce well-marked joint inflammations in twenty animals by inoculating them with living organisms obtained from the mouths of these patients. I draw your attention to these cases to accentuate the fact that bacterial infections can and do occur through the medium of pyorrhea pockets, and that such infections may involve any tissue in the body. The character of the infection and the bacteria found in the human mouth and alimentary tract depend upon habitat, occupation, foods, and the internal resistances of the individual. To show the possibility of mouth-infection resulting in kidney irritation I report the following case:

Case 3.—Male, aged 67; general health, excellent; all functions normal except digestion, which is hampered by a lack of hydrochloric acid; mild pyorrhea present from all the gums; and an abscess over the root-tip of the left upper first bicuspid, about one-third of an inch in extent. Recently the patient has felt tired. Examination of the urine reveals albumin and casts. Stamping out the mouth-infection resulted, in less than two weeks, in complete absence of albumin, and the casts drop from thirty in the first specimen to two in the specimen examined yesterday.

The vast importance of oral irritations to the general welfare of the body was never better illustrated than by the series of cases reported by Dr. Henry S. Upson, Professor of Neurology in the Western Reserve Medical School, in the *Dental Cosmos* for May, 1910, in which he shows conclusively nine cases of insanity due to painless dental diseases. Of these 9 cases operated upon dentally, 6 have recovered, 2 are improved, and 1 remains unimproved.

I also show radiographs of two of Dr. John O'Brien's cases, who recovered on the removal of impacted teeth. The accumulation of well-authenticated records of this kind certainly must increase the importance of dental disease in its relation to the welfare of the human body. Not only do we find dental lesions operating to bring about the loss of the teeth themselves, but we find that these lesions open a door to infections which may cause pernicious anemia, septicemia, rheumatism, neurasthenia, severe forms of dyspepsia, and acute insanity, as well as tuberculosis, actinomycosis hominis, and nephritis. There is not the slightest doubt in the mind of the author that pneumonia is also a mouth-planted disease. The absolute necessity for a point of inoculation for all germ-infection and the constant presence of lesions under the gum margins, thus providing a door of entry for these infections, should re-awaken the interest of every dentist and physician to the necessity of preventing such lesions and a sense of responsibility to see that such lesions once incurred are speedily healed. This is easily possible.

The recognition on the part of the physician of the necessity for surgical interference in all cases of alveolar inflammation should rest on one specific fact, namely, that wherever the alveolar process has been lost, exposing broken vessel-ends and pitted root-surface to infection, treatment is indicated, and that treatment should consist of the elimination of every possible form of local irritation, scrupulous cleanliness of the necks of the teeth, maintained by daily care on the part of the individual, and the curetting of the root-surface wherever fiber-bearing surface has been exposed, and, in addition, the removal by the curette or burr of any dead bone recognized in the alveolar process, accompanied by the free use of iodine pencilled into the pockets to destroy as many as possible of the bacteria which could not be removed surgically. These measures should be reinforced by careful attention to diet and the avenues of elimination, flushing the blood-stream by the generous drinking of water, increasing the activity of the skin and alimentary tract, and thus helping to maintain that nicely adjusted balance between waste and repair so needful to perfect health.

It is a matter of some significance that the great insurance companies are requesting data on mouth-infections with a view to further safeguarding their risks by requiring mouth-examinations of those desiring insurance.

DISCUSSION

Dr. Haldor Sneve (St. Paul): I have been very much interested in the subject of oral infection in connection with some nervous and mental cases, and while

I have not been at the matter long enough to report any definite results, still I am taken with the idea that has been advanced by the essayist, and I have no doubt that oral infection is back of a great many cases of nervous trouble, and I am glad we have a new rock to step on to try out, that is *infection* of the nervous system, which would be a far more sensible explanation of a good many obscure nervous and mental cases than those we now give. The remarkable number of cases reported by Upson of dementia precox cured after removal of infection foci is worthy of our earnest attention.

Dr. H. L. Ulrich (Minneapolis): The society ought to feel grateful to Dr. Hartzell for calling our attention to the extent of constitutional symptoms which may be caused by oral infections, specially pyorrhea. I have been interested in this from a therapeutic standpoint, particularly after reading Goadby's report on vaccine therapy in these cases. I have been recently working on a case with Dr. Hartzell, an old woman with enlarged, painful joints of many years' standing. There was no ptosis of the abdominal organs nor infection anywhere except in the teeth and some chronic process in the lung. We have been using an autogenous vaccine made from her pyorrheic condition, and in the last two months her general condition has very much improved subsequent to the use of vaccine. I expect to follow up this line of work further and report the results later on.

Dr. W. D. Shelden (Minneapolis): I would like to make a few remarks in support of Dr. Hartzell's position. I can relate only a few of my experiences which bear a definite relation to what has been said. I have been interested in the association that occurs frequently between gastroptosis, cases of malnutrition, and infections of the mouth, especially pyorrhea with its attendant destructive inflammation in the mouth. I have had several cases of gastroptosis whose disturbance of nutrition dated from the time of the onset of the pyorrhea, and as the pyorrhea progressed its destructive effect was noted in the loss of teeth and the loss of masticating power, the symptoms of gastroptosis developed; that is, malnutrition, loss of weight, gastric disturbance, and a train of symptoms you are familiar with seemed to step into the foreground at that time. It is difficult for me to tell whether pyorrhea and defective mastication were the fundamental causes, or whether it was the combined effect of gastroptosis and this condition. Certain it is, a patient in whom gastroptosis is present is greatly handicapped in the presence of uncleanliness of the mouth.

The essayist emphasizes the constitutional and circulatory effects in addition to the infection. I am sure that the pus that is swallowed is not an insignificant factor in the gastric disturbance. In the past I have not received the hearty co-operation on the part of the dentists in relieving these conditions that I should have had. I find many patients suffering from mouth infections, and especially from pyorrhea and abscessed teeth. I have had one or two experiences where, I believe, an abscessed tooth was a fundamental source of infection in a chronic arthritis. One patient with gastroptosis had ulcerated teeth with chronic arthritis. Goldthwaite tells us that a number of cases of chronic arthritis are due to the gastroptosis. This patient got quite prompt relief after the treatment of the abscessed tooth.

Dr. Thomas B. Hartzell (Essayist): This is a field that has not been exploited very much. I want to report one typical case from a group of cases I have seen in the last six months in which there was arthritis, and in which, after cleaning up the mouth, the joint disturbance disappeared. I have another case of different character which would answer the question asked by Dr. Shelden. This individual formerly weighed 191 pounds. He had been under treatment for obstinate dyspepsia. His weight dropped to 150 pounds. The patient was sent to me by a neighboring physician. I found three abscessed teeth, and all of the teeth exuded pus. I tried to estimate the amount of pus he was swallowing by holding the mouth dry and trying to squeeze the pus out from around the teeth, and I figured that he was swallowing an ounce a day of pure pus. The removal of the abscessed teeth and stamping out the pus infection was followed by a notable gain in weight. The patient gained nine pounds within a short time. There is no question but that many individuals are swallowing a great deal of pus, but because it is diluted in the saliva and because it goes on slowly, it does not appeal to the individual, and because the disease is painless the patient neglects it.

THE RELATION OF THE BOARD OF MEDICAL EXAMINERS TO THE PHYSICIANS OF THE STATE*

L. G. Hill, M. D.

WATERTOWN, S. D.

Since the establishment of records for the issuing of licenses to practice medicine in South Dakota, in 1885, up to the present time, two thousand seven hundred and eighty-one (2,781) certificates have been issued. Four hundred and seventy-four of these certificates have been issued since the creation of the Board of Medical Examiners, in 1903. It will thus be seen that a large majority of the physicians practicing within the state at the present time, came in under what is known as the "old law," and that a comparatively small per cent of the physicians who hold licenses to practice in South Dakota ever met officially with the Board of Medical Examiners of this state.

That the old regime was at least quite liberal

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

to the applicant, no one will question; but that the class of physicians who came into the state during the earlier years were the equal of any class of physicians found in any other state, there is no doubt. The physicians who have become licensed in this state within the last few years, have been among the best qualified graduates of our medical schools. Since the creation of the Board of Medical Examiners, the Board has had at heart the interests of the physicians practicing within the borders of our state, not only keeping abreast of the progress along the lines of medical education and requirements, but always working faithfully to keep the standards of this state equal to the best. In order to keep in touch with these matters and know what is being done along these lines, a delegate has usually gone to the various meetings on medical legislation and education and rendered a report of the same. It is well understood that the boards of health and licensing boards of the several states set the standards for medical education and requirement, rather than the medical schools and colleges; and it was not until very recently that the medical institutions have shown a tendency to hold their standards any higher than was absolutely demanded of the different states before their graduates could practice within their borders.

If, by this discussion of the relation of the Board to the physician in general, a better understanding of the purpose of the Board shall be had and a closer sympathy between this Association and its members and the work of the Board, shall be brought about, this paper will have accomplished its purpose.

It would seem that some have not a clear knowledge of the duties of the State Board of Medical Examiners. In the medical act it is specified that the proper duties of the Board are the examining, registering, and licensing of physicians and surgeons in the state of South Dakota. The Board is required to hold two regular meetings each year and such additional meetings at such times and places as the Board may deem advisable. The Board has the power to make rules and regulations for the guidance of its officers and the proper discharge of their duties. The act further states that the Board is to keep a record of all proceedings and of all applicants for license, giving the age and time spent in the study of medicine, etc. It also specifies what subjects the applicant is to be examined in, and the manner in which the examination is to be conducted. The Board is given the power to refuse to grant licenses for immoral or dishonorable conduct and may also revoke for sufficient reasons licenses already issued. Now, these in general, briefly stated, are the duties of the Board of Medical Examiners.

Some have seemed to think that the chief duty of the Board was to act as a detective agency in running down violators of the medical law. Many seem to think that there is a large fund of money appropriated, and at the disposal of the Board, to use for traveling expenses to round up these violators of the law, institute court proceedings, and pay the cost of the same, and that there is also a fund from which any member of the Board may be recompensed for leaving his practice and devoting his time to such matters. While the members of the Board may be in closer touch than other physicians with some of the violators of the medical law, they have no way of knowing when the law is being violated, any more than any other physician practicing within the state, neither have they the only authority to institute proceedings against the outlaws. There is no fund appropriated for the Board to use in such a way. The Secretary is ready at all times to furnish information regarding all who are legally qualified to practice medicine in this state, to answer all correspondence, and to advise as to what course to follow in a given case, but, until some appropriation is made for traveling and other necessary expenses, such as instituting court proceedings and gathering evidence, the Board is no more able to give the time and attention to the maintenance of our medical law or the weeding out of the undesirables, than any other legally qualified practitioner of the state.

Under the original medical act there was established a fund of two thousand dollars to meet the expense of carrying out the provisions of the act. All fees for licenses were to be turned into the general fund of the state. After deducting the salary of the Secretary, there was left twelve hundred dollars to pay the per diem and traveling expenses of the members of the Board and also to meet all bills for printing, stationery, postage and all other necessary expenses of the Board. In order to keep within the appropriation, the Board, ever since its organization, has always practiced the most rigid economy, both as to time consumed and actual expense. It has been the custom for the members to meet at the appointed place and begin to

conduct the examination at once. As soon as one subject is passed, the papers are examined, and by working all day and nearly all night correcting and marking the papers, the work has usually been finished in two days of nearly twenty-four hours each. This was invariably done, and, as a rule, all the work was completed in two days and two nights, the members putting in time for two days only, not counting the night work, nor the time consumed in going to and from the place of meeting. Thus by working day and night, and holding the examinations in the eastern part of the state, where traveling expenses would be at a minimum, the Board has been able, as a rule, to keep within the appropriation. In spite of this very small appropriation, which was made in the original medical act, during the eleventh session of the legislature, this appropriation was cut down from twelve hundred to nine hundred dollars, to cover the entire expense of the Board, exclusive of the Secretary's salary. This was brought about through the activity and under the advice of the then acting secretary. As there was no place designated where the Board meetings were to be held, it has always been the custom to meet in different parts of the state, thereby trying to accommodate the different sections of the state and members of the Board. Up to that time, one meeting had been held in the western part of the state, in the Black Hills. There had always been a member of the Board located west of the river, and it was thought by the Board to be no more than fair to hold, on rare occasions, an examination in the Hills. By the strictest economy there was usually a little surplus turned into the state treasury, but the former Secretary, evidently feeling that if a meeting were held in the Hills, all the appropriation might be used, and feeling that his salary might be affected, on his own initiative, without the knowledge or consent of any other person, recommended that the salary of the Secretary remain the same, but that the general appropriation be cut down from twelve hundred to nine hundred dollars. This reduction was not known to any other member of the Board until the end of the next fiscal year, when the member and Secretary through whose activity the change was made, had ceased to be a member of the Board.

It was found by his successor, who acted on the premise of the original appropriation, that there were no funds in the treasury, and in consequence, the members were some fifty or sixty dollars short for money expended in legitimate traveling expenses. This amount is still due the members from the state, as it was paid out by them personally.

Comparing the appropriation for the Board of Medical Examiners of this state with other states, it is found that South Dakota has about the most beggarly appropriation of any state in the Union, and that the members receive less for their time and services than most of the other Boards. While the members of this Board receive five dollars a day and traveling expenses, the majority of the states pay their members much more. The state of Washington pays the members of its examining board ten dollars a day and expenses; the members of the Minnesota board receive twenty dollars a day and traveling expenses; Kansas pays the members of its board six dollars a day and traveling expenses; the members of the Texas board receive ten dollars a day and traveling expenses; Arkansas pays the members of its board ten dollars a day and traveling expenses; and the members of the Wisconsin board receive ten dollars a day and traveling expenses. Nearly all states send several representatives to the various medical and educational meetings and to the meetings of the reciprocating and licensing boards, and in every case, so far we have been able to learn, not only the traveling expenses are paid, but they are also allowed a liberal pay for their time.

Most of the examining boards conduct their examinations with much more deliberation than this Board has been able to do, and if the Board of Examiners of this state should conduct the examinations with the deliberation other states enjoy, the appropriation would go just about half way round.

Much discussion has been had regarding the selection and appointing of the Board of Medical Examiners. As you all know, the Board in this state is appointed by the Governor, and always has been, and, like all other appointive offices, is more or less political. Some physicians with itching palms have said that because the Board is appointive, it is incompetent, and that if they, together with their associates, or the State Medical Association, could recommend who should be appointed or dictate who should constitute the Board, it would be wiser and more competent and a more representative body. If politics did not creep into medical societies, the same as into all other organizations, a Board composed of physicians elected or recommended

by the different districts or in some manner by the physicians of the state, would be a more representative body than one which is appointive, as now exists. The writer ventures to assert that there is not now, nor never has been, a member of the Board of this state who has not always been and is not now ready to welcome any change toward a better and wiser method of selecting the members of the Board, if such a method could be brought about, but until more legitimate interest is taken in medical legislation it is safe to say that this Board will continue to be an appointive one.

Perhaps the State Board of Health and the Board of Medical Examiners, should be one and the same board. This prevails in many states, and the one board seems to be able to handle the entire situation very satisfactorily. A large per cent of the correspondence received by the secretary of this Board is addressed to the State Board of Health, and as the interests and duties of the two boards seem to overlap to a certain extent in many instances, the one board could perhaps handle the entire situation satisfactorily and with less expense and with more credit to the state.

In the manner of conducting examinations, our state does not have the advantages that many other states enjoy in the use of medical centers, laboratories, and the facilities for the practical examination of applicants. It has been almost impossible to secure clinical material sufficient to use in examining a class. The State University has kindly offered the use of their laboratories, and it is the aim of this Board to always make the examination as practical as possible with the facilities at hand.

There is no one subject for which this Board has been more generally and severely criticized of late years than the question of reciprocity. During the period when this state held reciprocal relations with Minnesota, Iowa, Wisconsin, Illinois, and many of the other eastern states, the number of certificates to practice medicine issued under reciprocity nearly equaled those which were issued by examination. During the time of the lax divorce laws which existed at one time in our state, and also during the time when government land was thrown open to homesteaders, opportunity was afforded physicians who left the eastern states and came here primarily to escape some marital obligation, or who came here to secure land under the homestead act, after having located in this state, to resurrect an old diploma and become licensed to practice medicine in this state under the liberal reciprocity rules. While many who thus came and secured licenses were competent and capable physicians, many were not a credit to our medical fraternity, and it is safe to say that had our state continued to license physicians during the last six years under reciprocity with the eastern states, our commonwealth would have been flooded with physicians, much to the discredit of our state and the discomfort of those now practicing within our borders. What this state has wanted and still needs, is reciprocal relations with some of our western states. This state having until recently no provision for medical education, while Illinois and Iowa and many of the states east of us have several medical schools, these states have been very anxious to find a location for their graduates, and it was very convenient for them to enjoy reciprocal relations with this state so that they could dispose of their surplus output, but such reciprocal relations were of no particular value to our state, inasmuch as none of our physicians, or at least a very few of them, move from this state east. The physician wishing to move from our state, and thereby enjoy reciprocal relations, universally wishes to move west, and it is with the western states that reciprocity would be of benefit to us, and the question is often asked, why don't we reciprocate with Washington, Montana, Wyoming, or some of the western states? Letters are often received from some good man in the state who has found it to his advantage to move west where he has already become interested in some business proposition and he writes bewailing the fact that the Board does not reciprocate with the state to which he wishes to move. The answer to this question is that it always takes two to make a bargain, and while our state has always been willing and anxious to reciprocate with all or any of the western states, we have never been able to convince them that they should let our practitioners into their state through reciprocity, for the same reason probably that this Board has not considered it wise and for the best protection of our citizens and physicians, to let all of the states east of us pour their overflow into our borders indiscriminately. It is often said that "if A is competent to practice in Maine, he is also competent to practice in California, and this matter of passing state board examinations when one wishes to move from one state to another, is all wrong." This,

in part, is true, but so long as states have individual rights, there is no way of compelling any state to license a physician to practice medicine within its borders, only in such a manner as is prescribed by the laws of such state and the rules laid down by the board of health or licensing board.

This state now enjoys reciprocity with North Dakota and Nebraska, under what is known as qualification No. 1 as laid down by the American Medical Association; that is, any reputable physician who is otherwise qualified, can secure a license to practice in this state under reciprocity from either of the above-named states, provided he has been licensed in the state from which he wishes to move, by examination.

The Board has been in correspondence with nearly all of the western states in regard to establishing reciprocal relations with them, but up to the present time the state bordering on our north and the one on the south are the only ones with which we have been able to establish reciprocity.

As is well known, the standard for licensure in our state has kept well to the front, and, in fact, only a few states have been in the class with South Dakota in this respect. This state was among the first to recognize, in the classification of diplomas, only such medical colleges as required as a condition of admittance at least a four-year high-school education, in addition to the four years attendance at a medical school and at least one year at a college of liberal arts; and the rules adopted at the last meeting require all applicants for licensure to practice medicine in this state, matriculating subsequent tot 1911, as a pre-requisite to entering a medical school, to present to said Board satisfactory evidence of preliminary education consisting of an accredited four-year high-school course and, in addition, two years in a college of liberal arts or its equivalent, making the requirements in this state equal to those in any state in the Union and in advance of most states.

The Board asks and needs the hearty co-operation of every practitioner in the state, if our medical laws are to be respected; if the advertising so-called sanitarium is to be kept within the law; if the traveling spectacle-vender and charlatan who advertises as doctor, and the various so-called "united doctors" and specialists who over-run our state, are to be kept from bringing the profession into disrepute; if the man who comes into the isolated territory and begins to practice without securing a license, because he says the community urges him to do so, until he has built around him a wall well-nigh impregnable against the law, is to be made to respect the law. If all these and other irregularities are to be controlled, each and every physician in the state must be willing to aid in the enforcement of our medical laws and be ready to work in hamony with our State Association, our Health Board, and our Board of Medical Examiners, for clean, honest, and efficient medical work within our state.

A SPLINT FOR FRACTURED CLAVICLE

By J. T. Leland, M. D.

HERMAN, MINN.

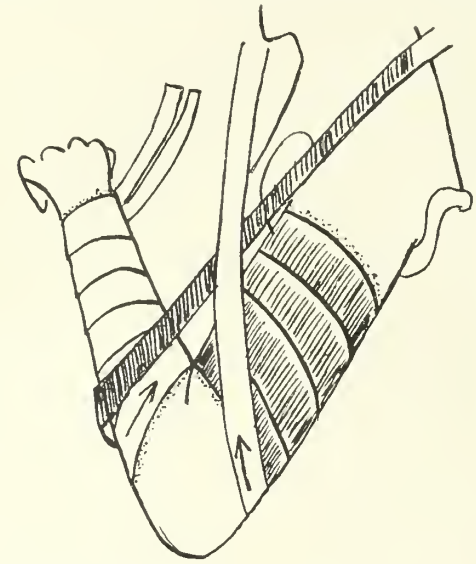
That there are some 70 ways of retaining approximation of the fractured clavicle would indicate considerable dissatisfaction, not only with results, but with methods employed. The consequences resulting from a break of this bone, even with the most indifferent dressing, are trifling, so far as disability is concerned, and it is to the unfair arm-treatment and its utter incompetency in producing retraction that I wish to call attention more especially. To no other bone do we accord the distinction which characterizes our treatment of this particular fracture, namely, an extremity, in no manner involved, is compelled to be triced up only to be rewarded by indifferent results.

The position of Hippocrates is the ideal one: both scapulæ are retracted, no demands are made upon the unoffending arm, and upon this principle all dressings are based, mindful that the patient will not assume that position, yet forgetful of the keynote of success—retraction of *both* scapulæ.

Sayre's modified dressing is the dressing most frequently employed and illustrates the principle employed: if comfortable, overlapped union; if uncomfortable to the point of intolerance, approximation at its best is but fair. The pull of adhesive plaster attached to extensive skin areas is exerted to retract and elevate the shoulder through the fulcrum of an uninvolved extremity.

To evade this, and because of unsatisfactory end-results, plaster of Paris has been applied.

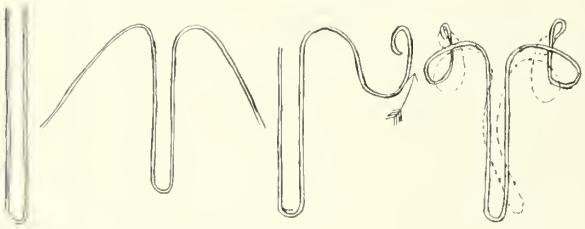
with or without traction attachments incorporated, and though demanding less of the arm—in that both shoulders are included by some figure-of-8 method—it still has the objectionable feature of extreme traction, the stress of which



Arm DRESSING

is brought upon the axillæ, to say nothing of the strained position necessitated while drying.

The characteristic attitude, instead of being credited to muscular pull and the weight of the shoulder falling forward, is no doubt due to the patient's discovery that, by assuming such a position, motion—hence, pain—is eliminated. He could as well assume extreme retraction of both scapulæ, if, in so doing, immobility were as easily effected. With our knee between the scapulæ



Bending splint-frame.

while both hands exert strong retraction upon the shoulders we speculate upon the simplicity of approximation. It is ideal, yet the nearest approach to it we employ is through the leverage brought to bear upon but one side, through the ineffectual, unwarranted, and distressing traction upon the unoffending arm.

I have attempted a splint which acts upon the principle advocated by Hippocrates, but permits of the upright position. This splint is made of iron wire (¼ inch) after the manner of the Cabot splint, bent in half, the two extremities bent again to the border of the axilla, then down-

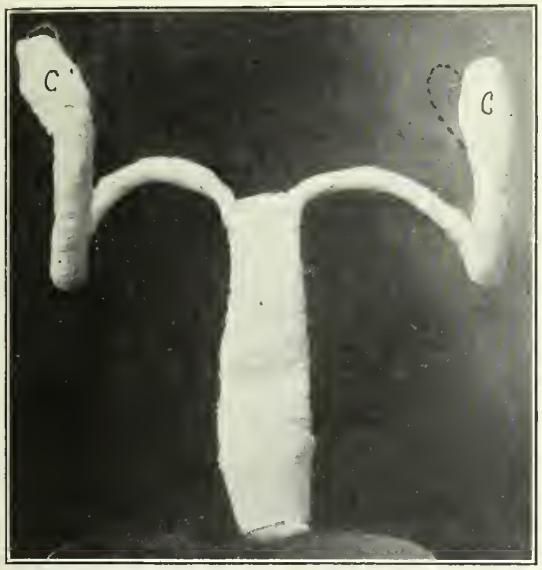
C. When the arm is adducted, the splint arm acts as a fulcrum, which carries the shoulder well out.

ward and forward beneath the axilla with a final upward turn grasping the shoulder. The ful-

A. Fulcrum between the scapulæ. B. Lever, bent outward from the spine, although the photograph gives it the appearance of being bent inward, which is faulty.

crum is between the scapulæ, the lever extending down the spine, padded with sheet-wadding, and

bound with a flannel bandage. The axilla and seat of the fulcrum are padded while retraction is maintained by a three-inch roller bandage passing about the chest, first having made several turns about the extremity of the leverage. Retraction is most assuredly produced, and no advantage can be taken of it later by any slipping, etc. Applied under the clothing, the shoulder is exposed to inspection, and there are no adhesive plaster attachments. It is as comfortable as any retentive dressing can be, consistent with results demanded.



Interior view. CC show the bend inward as indicated by the dotted lines.

The arm is put in repose by the aid of two roller-bandages (2 inch) applied over sheet-wadding, one beginning at the wrist and applied to the elbow, while the remainder begins at the shoulder and also terminates at the elbow. The forearm bandage leaves an extremity six inches long at the wrist, which is split down its middle, tied in a knot, then circles wrist. The two ends resulting are left to support the hand at opposite the shoulder. At the elbow this bandage passes in at the flexed elbow and is brought out and over the external border of the arm above the elbow. The arm bandage includes the flexed portion of the forearm in the same manner. The arm bandage then passes back of the neck to uninvolved shoulder, and the forearm bandage in front of the neck to the same shoulder, where they are tied in a knot, encircling that portion of the splint in the axilla when the final knot is secured. Then the arm is supported by pinning the wrist-piece to the shoulder-knot, without pulling on the neck.

The advantages are as follows:

1. Singleness of purpose,—retraction of both scapulæ.
2. Elimination of adhesive plaster.
3. Ease of moulding, repeated use, and fully exposed seat of fracture.

CONSERVATION IN SOME CONDITIONS OF SURGERY OF THE INTESTINES

By G. R. Curran, M. D.

MANKATO, MINN.

Conservation of energy and of resources is the slogan of the hour in the mechanical and financial world; and even in surgery, conservation methods have for a long time received the careful attention of workers in this branch of science. We wish to call attention to conservation methods of treating some surgical conditions of the intestines. One is invagination of intestines, when the vitality of the lumen, up to six inches, is impaired, instead of resection of the injured bowel and anastomosis.

We saw Kocher, at Berne, some ten years ago, invaginate three inches of necrosed intestine in a strangulated hernia case, with good results. Dr. John E. Summers, of Omaha, presented this subject before the Surgical Section of the American Medical Association a few years ago. Others have used it with good results. Still it does not seem to be as well known as it should be; and so far as we know, Dr. C. J. Holman, with whom we have done most of this work, and ourselves are the only ones successfully turning in as much as six inches of the intestine.

In June, 1910, we were fortunate in seeing Dr. Charles L. Gibson do one of his cases of resection of the sigmoid and then invaginate the upper end into the rectum. He has since reported this case in the *Annals of Surgery*, and others have adopted its use with excellent results.

Attention is called to this only to ask, if invag-

ination is used in cases where resection has occurred, how much more, then, should it be used when the septic lumen of the bowel does not need to be opened? It can be used in many cases, not malignant, where the pathological condition of the intestine will lead to necrosis, or where the

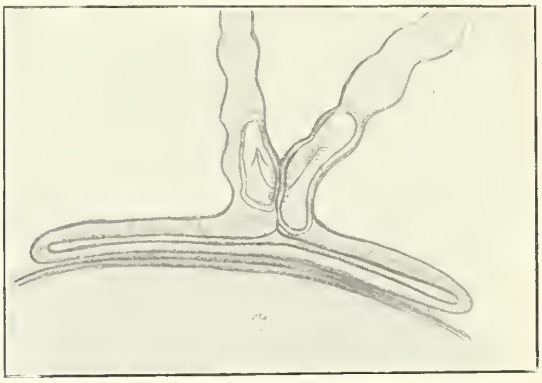


Fig. 1. Seat of operation enlarged.

serous coat has been destroyed, which would eventually lead to many adhesions.

We have used this method in over a dozen cases, both of traumatic and pathologic origin, turning in as much as six inches of the lumen of the intestine without any untoward results whatever. In one case of traumatic shock we feel

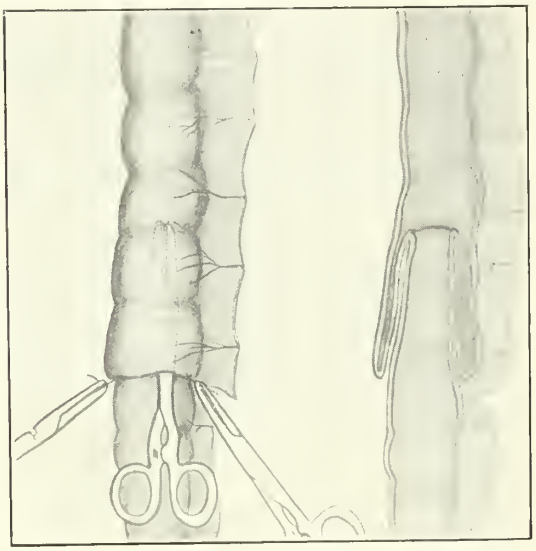


Fig. 2. Showing the technic of invagination.

that the patient might not have withstood a resection.

The technic is simple. Find the center of the part to be invaginated, and then with a pair of forceps push this part into the lower segment of the intestine. Insert three stay-sutures to bring the healthy bowel above and below together, one at the mesentery at each side, the other in the center of the intestine, and then with a needle and linen thread and the Glover stitch rapidly turn in the serous coat, going deep enough to take in the muscularis mucosa or even the mucous membrane itself.

The other method of conservation in intestinal surgery is in obstruction of the bowels. This often follows operative interference, traumatism, peritonitis, or any condition causing peritonitis. This form of obstruction usually comes on gradually, and in operating we may find many feet of intestine involved and incapable of functionating. We can best illustrate our method by relating the following cases:

Miss S., operated on three years ago for tuber-

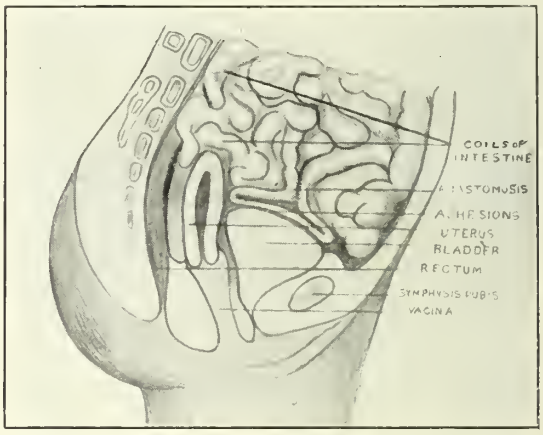


Fig. 3. Schematic drawing of the result of the anastomosis.

cular tubes and ovaries. Ten hours later we found her in shock from hemorrhage and immediately opened the abdominal incision. We found the stump of an ovarian artery bleeding into the broad ligament on one side. This had caused an enormous hematoma in the broad ligament and had also stripped the serous coat from the bladder. After a stormy convalescence she emerged with a fistula of the bladder and intestine. In a few weeks the opening in the bladder closed. After several unsuccessful attempts we succeeded in closing the intestinal fistula.

We found at this successful attempt that one reason for our former unsuccessful closure of the intestine had been that the intestine immediately below the fistula was adherent to the bladder for over a foot in length, causing complete obstruction. To free it would not only mean the resection of the involved bowel, but would leave an impaired bladder-wall, which had previously

given trouble. After closing the fistula in the intestine a lateral anastomosis was made just below and above the intestine involved in the bladder-wall. This was over two years ago, and she has remained in the best of health ever since.

In another case of traumatic adhesion with obstruction of the intestine we found five feet of intestine that needed resecting. We believe now that the case might have got well if we had done the conservative operation of making a lateral intestinal anastomosis just above and below the loop of bowel involved.

Some years ago Mr. A. Lane, of London, brought before the public his method of removing the large intestine for various troubles, especially Hirschprung's disease. Very often short-circuiting the fecal contents by anastomosing the lower end of the ileum to the sigmoid will give all the relief of the more formidable operation; this ileo-sigmoid anastomosis will often heal ulcers of the large intestine as readily as does gastroenterostomy of the stomach heal the ulcers in the pyloric end. If, later, this large gut must be removed we have already performed one stage of a serious operation.

THE BACTERIOLOGY OF AN EPIDEMIC OF PARATYPHOID FEVER*

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ST. PAUL

The attention of bacteriologists was first attracted to paratyphoid fever in 1896, when Archard and Bensaude[1] isolated from the urine of a case of apparent *enteric* fever and also from a purulent arthritis following a similar illness a bacillus which they termed the "paratyphoid bacillus."

In 1898, Gwyn[2], in a case with "all the clinical features of typhoid fever," based his diagnosis of paratyphoid upon the cultivation from the blood of a bacillus corresponding culturally to the organism described, in 1897, by Widal and Nobecourt[3] and termed by them the "paracolon bacillus."

The findings of Schottmüller[4] in 1900, and 1901, and of Kurth[5], in 1901, added materially to our knowledge concerning the properties of the paratyphoid organism. Schottmüller recognized the two species of the bacillus, which today form the basis for our classification into the groups designated by Brion and Kayser[6], *bacillus paratyphosus A* and *bacillus paratyphosus B.*

Responding to the stimulus thus given the subject by Schottmüller and Kurth, numerous contributors have since added to the literature upon paratyphoid fever. Many facts of great value, especially the part played by carriers and the incidence and importance of the disease, have been brought to light; nevertheless, widely divergent views regarding essential aspects of the subject still exist. Particularly at odds are the conceptions of the various investigators as to what should constitute the essential differences between the two strains of the paratyphoid organism. Thus, for instance, the continuous production of acid in litmus milk is held by many to be the distinctive cultural characteristic of bacillus paratyphosus A. Proescher and Roddy[7], on the other hand, advocate litmus *whey*, claiming that litmus milk is of no value as a means of differentiation, owing to the changes in reaction to which, they believe, this medium is in itself liable.

A sharp variance of opinion, too, is seen in the matter of differentiation between paratyphoid fever and the meat poisonings, some[8] believing that the origin of the former should be strictly limited to bacillus paratyphosus; and of the latter to bacillus suipestifer, others[9] expressing the conviction that no such true distinction is possible.

A further source of confusion has been the addition to the literature, from time to time, of numerous closely related organisms, each adorned with its own title. We have, for example, as Bainbridge[8] observes, (1) bacillus psittacosis, isolated by Nocard during an outbreak of illness occurring among parrots in Paris; (2) bacillus typhi murium, which has been found in mice; (3) bacillus morbificans bovis, which was isolated by Basenow from a diseased cow; (4) bacillus icteroides of Sanarelli; (5) bacillus Danyz, and many others. To clear the

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

atmosphere, in this regard at least, the suggestion has been made[8] that we do away with the general term "intermediate" or "paracolon group," using instead the expression "Salmonella group" and classifying in it only four organisms, viz.: (1) bacillus paratyphosus A; (2) bacillus paratyphosus B; (3) bacillus suipestifer; and (4) bacillus enteritidis (Gaertner).

Time does not permit, at this point, of a more extended enumeration of the varying views and interesting difficulties with which this subject is beset. Suffice it to state that there, nevertheless, exist certain recognized general facts concerning the morphology, cultural properties, and serological reactions of the paratyphoid bacillus, and such should be held necessary in the establishment of a diagnosis.

The question of a specific strain, or variation of strain, is less easily met, and the answer must necessarily depend largely upon the experience or inexperience of the individual worker.

The bacteriological findings upon which this paper is based were obtained during an investigation* of an epidemic of "paratyphoid" fever at the Boston State Hospital. Remarks bearing upon the epidemiology and symptomatology of the epidemic are from the reports (shortly to be published) of Dr. M. M. Canavan and Dr. M. E. Gill.

Thirty cases of the disease occurred during the first six weeks of the winter of 1910-11. A striking feature was that the epidemic singled out almost without exception the employees of the women's department of the institution, the main brunt being borne by the nurses themselves. Amongst those taken ill, however, were the chief cook and two patients who assisted him. One of the latter when first seen gave a positive agglutination reaction for bacillus paratyphosus A, and a positive culture of this organism grew from his blood. The same organism was also isolated from the blood of a patient who assisted in serving the meals and who was on duty up to the time cultures were made.

The history of most epidemics of a similar nature had doubtlessly here repeated itself, and we were dealing with one of those instances which no amount of vigilance can eliminate,—an infected food supply. Kolle and Hetsch[10] are agreed that such infection of food articles leading to the development of epidemics is in a large number of cases to be traced to people who emit paratyphoid and allied bacilli in their dejections. The intestine is the chief place in which a multiplication of the bacilli takes place. From here the water of springs and streams, milk, meat, green vegetables, fruit, etc., can all be infected and so lead to an epidemic. The prevention of such food-contamination by chronic carriers is obviously most difficult and forms today, not only in the case of paratyphoid, but in typhoid, dysentery, and the like, one of the most vital problems pertaining to prophylaxis against infections in general.

In considering the clinical features of this epidemic, one is at once struck with the impossibility of laying down any hard and fast rules concerning the symptomatology of paratyphoid fever. The duration of the attack ranged, in our series, from eleven days to five weeks. Two of the cases had relapses and were confined to bed for nine weeks. In another, following improvement of the symptoms, fever persisted for eight weeks, and it was a matter of three or four weeks more before convalescence was truly established. The onset was, in most cases, rather abrupt, prodromal symptoms usually existing only a few days. Chills were common, and many had profuse sweats. The severer cases, it is to be noted, underwent a more gradual onset and showed correspondingly more severe prodromata.

Of the individual symptoms, a remittent type of fever tending to return to normal by lysis, headache, pain in the back and limbs, constipation, and tenderness of the abdomen, were the most prominent. A papular eruption of the skin, lasting less than forty-eight hours, occurred in three instances. The spleen was enlarged upon percussion in about ten of the thirty cases, but palpable only in three.

Convalescence was for the most part slow and attended by an exhaustion out of all apparent proportion to the severity of the preceding symptoms.

Direct complications were strikingly absent. One patient, after being up and about, developed an acute painful swelling of the ankle. No instances of intestinal hemmorrhage or perforation occurred, and all thirty patients recovered.

Cultures from the blood were studied in seven cases. The selection of these was made, more or less, at random, it being attempted merely to secure those which would be fairly representative of the epidemic as a whole. In each instance, pure cultures of the organism about to be described were obtained. Of four cases, in whom

*I desire to express my thanks to Dr. H. E. Frost and Dr. E. S. Southard for the opportunity of carrying out the investigation.

the day of disease could be fairly definitely established, two gave positive cultures on the third and two on the ninth day.

The organism isolated is a short, actively motile, Gram-negative bacillus. Its average length appears slightly less than that of the bacillus typhosus or bacillus coli. Its motility in *fresh* bouillon cultures is of a strikingly rapid, darting character, in sharp contrast to the slow undulating movements of the typhoid and colon organisms. After a few (4 to 5) days' growth in bouillon, a decided diminution in activity can be noted. The organism grows readily in *bouillon,* producing a diffuse clouding similar to that seen in the growth of bacillus typhosus. On the ordinary *agar* slant, a distinct greyish-white growth occurs. Like the typhoid, it grows readily in sterilized *ox-bile. Gelatine* is not liquified, a slow white growth taking place along the line of stab and in the form of a "nail-head" upon the surface.

Litmus milk is not coagulated. Early acidity of the milk occurs during the first twenty-four hours. In six cases the acidity slightly increased during the first three or four days and from then on remained constant throughout. In the remaining case (Case M) the acidity slowly diminished, the reaction becoming neutral at the end of two and one-half weeks. In none was there any terminal alkalinity.

The growth of the bacillus on *potato* is invisible like that of bacillus typhosus.

In *neutral red agar,* a change to a yellow color is first observed in the bottom of the tubes. This returns to red in the course of four to eight days. An identical color change occurred in control cultures of para A and para B (kindly supplied by the Boston Board of Health).

In *peptone water,* no indol production occurs at first, but at the end of ten days' incubation a trace can be detected. This is in great contrast to the early and marked production of indol, which is seen in the case of bacillus coli.

Glucose, galactose, maltose, and *mannite* are all fermented (with the production of acid and gas) by this bacillus. No fermentation of *lactose* or of *saccharose* occurs. The control cultures of para A and para B behaved in the same manner, so that, as noted by previous observers, the procedure does not aid in the differentiation of the two paratyphoid organisms. To rule out bacillus coli and bacillis typhosus, however, the employment of these carbohydrates is invaluable, the colon bacillus fermenting them all, the typhoid bacillus none.

Dependence in the classification of an organism, such as the one described, should not rest upon morphology and cultural properties alone. The matter of agglutination tests is of equal or even greater importance, and certain data from our serological studies in connection with this epidemic are of extreme interest.

As a matter of routine, Widals were carried out with the serum of every patient. In four the reaction was positive. Presuming all of these to have been instances of paratyphoid infection (one is certainly such as it occurs in the series of positive blood cultures), the reaction can be explained by the phenomenon of "group aggultination." This has been proven, contrary to the view of early workers, to occur fairly frequently in any series of cases infected by members of the typhoid-colon group.

While the epidemic was at its height, in the one instance in which the agglutinative power of a patient's serum upon a stock paratyphoid A was tried, the reaction was positive. Four months after the epidemic, in a series of seven recovered patients, the sera of two (one in a dilution of 1-150) caused well-marked agglutinations of para A. One also slightly agglutinated para B and two agglutinated bacillus typhosus (dilutions 1-50).

The effect of a patient's serum when tried upon her own organism resulted in a marked agglutination on the 16th day of the disease. Likewise also did this patient's serum agglutinate the organism recovered from another case.

Of greater importance than these reactions is undoubtedly the effect upon recovered organisms of highly immunized animal sera. The bacilli isolated from six of the cases were tested with the serum of a rabbit immunized against bacillus typhosus. In no instance, even with very low dilutions, did any agglutination take place (control stock typhoid organisms clumped readily in dilutions up to 1-300).

The same organisms were then tried with a serum immunized against bacillus paratyphosus A (kindly supplied by the Hygienic Laboratory, Washington). In every case, in dilutions of 1–100, 1–200, and 1–1000 marked agglutinations resulted. With a serum immune to bacillus para B agglutinations occurred with 1-100 and 1-200 dilutions. In the case of 1–1000 dilution, however, only an occasional small clump was noted,

in marked contrast to the strongly positive reactions obtained with the para A serum.

An analogy to the high agglutination of bacillus paratyphosus A by serum immunized against para B is seen in the case of bacillus dysenteriæ. Thus, the Flexner-Harris type of this organism may be clumped by the serum of patients infected with the Shiga type in even higher dilutions than the latter organism itself.[11]

The method of Michaelis[12] (supposed to depend upon the agglutination of bacteria by varying amounts of acid) when tested with our organism and a series of controls, failed to give results sufficiently distinctive to be of value.

CONCLUSIONS

1. In a series of thirty cases presenting a somewhat varied clinical picture, blood cultures performed in seven yielded in each instance a pure growth of an actively motile, Gram-negative bacillus.

2. This bacillus differs essentially in its cultural properties from bacillus typhosus and bacillus coli.

3. In its growth on carbohydrates this bacillus conforms with the paratyphoid organisms.

4. Both from its behaviour in litmus milk and its reaction to certain submitted agglutination tests, the bacillus isolated in this epidemic is believed to be bacillus paratyphosus A.

5. Amongst the individuals from whom the organism was obtained were two who assisted in the preparation and serving of food. This, together with the peculiarly limited distribution of the epidemic, is believed to justify the conclusion that the disease was due to an infected food supply.

6. A positive Widal reaction does not exclude the diagnosis of paratyphoid fever.

7. An accurate diagnosis of paratyphoid infection can with certainty be made only by the isolation of the paratyphoid organism from the blood.

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RECOGNITION OF LABORATORIES

The Minnesota State Board of Health has a problem to solve in recognizing the work of private laboratories in various parts of the state. In some of the smaller cities in Minnesota a firm of physicians have laboratories for their own convenience, and some of them have workers who devote much time to laboratory findings. Frequently, the laboratories are inadequately equipped as regard both apparatus and workers, yet they fill the ordinary needs of physicians. These laboratories cannot be made to serve the requirements of the rules and regulations of the State Board of Health, for the reason that the laboratory men are either unknown to the Director of the State Laboratories or some of the men who operate the private laboratories are not sufficiently skilled in laboratory methods. This is particularly true in the matter of releasing patients with communicable diseases from quarantine.

When diphtheria is epidemic in small towns, well-defined cases of diphtheria are not infrequently released from quarantine before the danger of communication is passed. The result is, that diphtheria continues to spread and the epidemic continues until it gets beyond bounds. Physicians should use extreme care in diagnosis, and when a case of diphtheria is evident, a release should not be given until the State Laboratory gives its consent. This is a safeguard to the physician, his patient, the family, and the community. It is almost impossible to control all cases of diphtheria when private laboratories lift the quarantine before the necessary negative findings have been thoroughly investigated.

There is every reason to believe that the patient who is given antitoxin gets well quicker than one who has not had antitoxin, but the one should be as carefully guarded as the other. The physician is often perplexed as to the right method to pursue, and the only safe rule to follow is to give antitoxin in the suspected case, send a smear to the State Laboratory, and wait for the report, whether positive or negative. No risks should be taken under any circumstances. Many physicians find themselves blamed for giving antitoxin too early, and when antitoxin has been administered and a negative report comes in from the laboratory, the family frequently complains of the seemingly unnecessary expense of the antitoxin, and the doctor is blamed for the efforts to be on the right side. As a matter of fact, the use of antitoxin, as now given, is practically harmless, but the people are constitutional doubters and think the physician is inclined to overcharge for the treatment of an ordinary sore throat.

Then, too, if the physicians of a town are not on good terms, an additional criticism may be spread about by a rival who seeks to belittle his fellow man. In spite of this handicap, it is the duty of every man to take every precaution to prevent an epidemic from becoming general. The people will soon learn the value of careful foresight and treatment. The man who undertakes to criticise the methods of another may find himself in a predicament. To see and neglect a case of suspected diphtheria is almost as bad as a crime, but to criticise the treatment of a case he has not seen, the physician who places himself in this light is unpardonable.

The State Board of Health is endeavoring to create branch laboratories in various parts of the state under the direction of trained men, but this requires money not yet available. As soon as this can be done, physicians will find quickly accessible means for diagnosis and release.

Until these laboratories are established, the safe method is to keep in touch with the general State Laboratory in Minneapolis. Mankato has a branch laboratory that was the outgrowth of a combination of nearly all of the physicians of

that city. Fifteen physicians subscribed one hundred dollars each, and the State Board of Health put in a trained laboratory man and contributed the balance of the money necessary for its maintenance. The experiment immediately proved successful and supplied a large territory with a working model. All kinds of laboratory aids can be found there, including pathological and bacteriological examinations. This relieves the State Laboratory of some of its work and permits quick returns.

Duluth has a similar plant, and other cities will be served as soon as the necessary appropriations can be secured.

THE AIR WE BREATHE

A recent revolutionary doctrine propounded by Dr. Leonard Hill, that "in ventilation chemical impurity of the atmosphere is of no importance", has started a controversy that will be educational.

Dr. Frankforter, professor of chemistry at the University of Minnesota, contends that this statement is not founded on a sound basis, and he affirms that good pure air is far more desirable. So it is, and the majority of people believe it. There are places, however, where pure air is impossible of attainment, with or without ventilation, and the statement of Dr. Hill may be a consolation to those who are obliged to work or live in stale air. It has been shown by experiments that an animal or a man may exist in a confined air-space for a period of time, and that the air will eventually make the confined person or animal drowsy and sleepy, the presumption being that he is poisoned by his own respirations. It has also been shown that if a fan is turned on to stir the air and keep it in motion the individual will immediately revive, and soon be restored to his former state of comfort. No new air has been introduced, the old air has simply been kept in a condition of activity.

Many people believe that sewer-gas is a rank poison, and that it is responsible for many forms of disease. This theory is not altogether true. The main objection to air polluted by sewer-gas is that it is disagreeable and nasty, and that it increases the virulence of existing microbes. Sewer-gas in itself is remarkably free from bacteria, but is a "healthful and congenial environment for such germs as it meets," and in this way it may be injurious.

Gases arise from various sources, such as the decomposition of animal and vegetable substances, fecal matter, marshes, and during earthquakes and sudden falls in atmospheric pressure. The influence of these gases on microbes varies considerably, and depends on a number of factors.

Its effects may be strangely contrasted. A small amount of gas with a short contact may do much harm, while, if the amount is large and the exposure longer, it may have an antiseptic action. This may explain the fact that sewers and cess-pools are free from bacteria.

The gases which emanate from towns and marshes are frequently moisture-laden, and thus become modified culture-media for germs and for the breeding of insects, and, in turn, propagate disease.

Given, a healthy individual free from recent exposure to virulent germs, the breathing of vitiated stirring air is practically harmless. On the other hand, an impoverished person, who harbors germs of various sorts in his air-passages, is more likely to increase the growth of his colony if the air he breathes is still, moist, and filled with dust.

A certain amount of humidity is necessary, or, at least, more comforting, in the air we breathe, but if we can constantly breathe air in motion, free from dust-carrying bacteria, even though it is moist, the danger of latent bacteria becoming more active and dangerous is lessened in the air we enjoy. No one cares to live in bad air, but those who are forced to live in places where the air is not good, need feel little cause for alarm if the air can be kept circulating.

AN EPIDEMIC OF SERUM CURES

Following the glowing accounts of the success of Friedmann and his serum, an avalanche of new sera for the cure of tuberculosis will flood the country. The hopes of the poor consumptive are raised to deplorable heights, and the usual disappointments will inevitably follow. Men are rushing to large centers with their own manufactured and untried remedies into a field of willing subjects. The lay press is exploiting every new remedy by display heads and photographs, and very soon we may expect testimonials from all over the land from people who think they have been cured of tuberculosis by an injection. The same old story will be repeated, and the testimonials will continue to appear long after the death of the patients. The excitement will be greatly to the advantage of the charlatan who will proclaim his remedies and doubtless many fake sera will be placed on sale. Even Friedmann apparently has succumbed to commer-

cialism and is reported on his way to this country to try for the million-dollar prize! It is unfortunate that the discoverer and his patients are not willing to wait until they are certain of results.

There is but one rational way to prevent the spread of tuberculosis, — segregation, fresh air, and good food. Get the man who is infected, prevent him from communicating his disease to others, and thus cure by prevention. This is the real relief, and all others are doubtful and unreliable.

CORRESPONDENCE

DIABETES MELLITUS

To the Editor:

I am undertaking an exhaustive research into the pathology, etiology and dieto-therapy of diabetes mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment, or who has had any experience in the treatment of this malady. Von Noorden says: "The best treatment for the diabetic is the *food* containing the *greatest* amount of *starch* which the patient can bear without harm." If any physician who reads this letter has similar or contrary experience, and would take the trouble to write me, I shall esteem it a special privilege to hear from him, if by only a postal card.

William E. Fitch, M.D.,
355 W. 145th St., New York City.

MISCELLANY

MEMORIAL TO DR. PARKS RITCHIE

The faculty of the College of Medicine and Surgery of the University of Minnesota, passed the following beautiful memorial tribute to Dr. Ritchie, who died on February 2d:

The faculty of the College of Medicine and Surgery of the University of Minnesota records its sorrow for the immediate loss of an old friend and faithful associate in the death of Dr. Parks Ritchie.

He was one of a loyal band of medical pioneers in Minnesota, coming to this state in 1881 and practicing his profession for forty-three years. He entered into the work of medical education in 1885, and has continued the teaching of obstetrics for twenty-eight years. Until his election to the deanship of this college he carried his share of the burden of medical teaching without remuneration. He filled the office of dean with constant devotion to its interests, during a difficult constructive period in the history of this college for nine years.

He was distinguished for his interest in and his unfailing kindness to young men, and many are they who, as students and as physicians, in their early experience, will bear witness to his timely help and personal affection. His colleagues warmly testify to his loyalty in service, his faithfulness in friendship, his generous feeling, his kindly bearing and his saving sense of humor in the daily companionships of life.

In presenting this memorial to Dr. Ritchie's family the faculty extends its sympathy in a loss that is no less great because it is lighted up with cherished and revered memories for all who have known him in any and every relationship he has filled.

BOOK NOTICES

Harelip and Cleft Palate. By James Berry, B. S., London, F. R. C. F., and T. Percy Legg, M. F., London, F. R. C. F. Published by J. and A. Churchill, 7 Great Marlborough St., London.

This is a very valuable contribution to the literature of harelip and cleft palate. The literary style is so clear and simple that it is read without effort or fatigue, and yet leaves a most vivid mental picture of the whole subject which ought to be easily available by the surgeon when called upon suddenly during an operation to decide the best method of procedure in a given case. Notwithstanding its simplicity, the subject is treated most exhaustively from all viewpoints, and with a great wealth of illustration.

The early chapters are devoted to a study of the normal development of the lips and palate; of the various defects which arise from arrest of such development at different periods of growth; and of the functional results of such defects in deglutition and nutrition and imperfections of speech. The chapters devoted to treatment, both of harelip and cleft palate, are written with the utmost clearness and describe with such minute detail the various steps of the operations required that it ought to be possible for any surgeon to reproduce them with a fair degree of success.

The authors advocate repairing the harelip within the first few weeks after birth, postponing the operation for repair of the cleft palate for at least two years, claiming and proving by reference to their own cases that the constant pressure of the repaired lip diminishes the width of the cleft to such a degree that a cleft that would be impossible of closure at birth is easily closed after this time. They estimate as success perfection of phonation and articulation, and not closure merely; and, judged by this standard, they consider the classic Langenbeck operation, with some refinements of their own, as giving by far the best and most satisfactory ultimate results. They do not favor the flap-operations of Lane, which are done within the first few weeks of life, because of the displacement of the tissues into abnormal positions, their high mortality (12.50 per cent), and probably poor ultimate results as regards function. Neither do they favor the Brophy operation, because it is liable to be dangerous in the hands of any except the very skillful, because it is not available in any except complete clefts, and because the same result,

with much less danger, can be attained by the classic Langenbeck operation. Their conclusions are based on an analysis of 174 cases, with no mortality and very few failures.

The illustrations, so necessary for the proper elucidation of such cases, merit special commendation. They are mostly original drawings and present every phase of the subject,—the various types of harelip and cleft palate, and every minute step in their operation, and also the results obtained,—in a most illuminating way.

Taken all in all it is a most delightful book, and its perusal will afford a real pleasure to those interested in lessening the unfortunate handicap under which patients with harelip and cleft palate must meet and fight the world. —SWEETSER.

MODERN METHODS IN NURSING. By Georgiana J. Sanders, formerly Superintendent of Nurses at the Massachusetts General Hospital, Boston. 12 mo., 881 pages, with 228 illustrations. Philadelphia and London. W. B. Saunders Company, 1912. Cloth, $2.50 net.

An excellent and most comprehensive treatise on nursing; valuable not only to the trained nurse, but also to the physician who lectures to nurses in training.

—TALBOT.

DISEASES OF THE HAIR. By George Thomas Jackson, M. D., Prof. of Dermatology in the College of Physicians and Surgeons, Columbia University, and Charles Wood McMurtry, M. D., Instructor in Dermatology in the College of Physicians and Surgeons, Columbia University. Cloth, price, $3.75 net. Lea & Febiger, Philadelphia.

This volume of 360 pages is clearly written and richly illustrated. After giving general consideration to anatomy, physiology, and hygiene, it treats the essential diseases; inflammatory diseases of the follicles; parasitic diseases; and those secondary to diseases of the skin.

The interesting subject of alopecia prematura symptomatica is extensively presented, heredity being considered the great predisposing cause and seborrhea the chief exciting cause, the latter being not only very prevalent, but contagious. The wonder is, not that so many people lose their hair, but that more do not.

Much space is given to parasitic diseases, especially ringworm which is more completely presented in this book than any other except those of R. Sabouraud upon which it freely draws.

This book will be found a great help in the diagnosis and treatment of a much neglected subject. —CRUME.

NEWS ITEMS

Dr. W. J. Stack, of Currie, will move to Adrian.

Dr. H. C. Stuhr has moved from Argyle to Minneapolis.

Dr. F. D. Stuart has moved from Wagner, S. D., to Independence, Mo.

Dr. C. P. Buzzell, of Napoleon, N. D., has decided to move to Cleveland, in the same state.

The new N. P. Hospital was opened on Jan. 30th at Glendive, Montana. The building cost $125,000.

Dr. G. H. Burfiend has moved from Afton to Minneapolis and has offices at 1100 Twentieth Ave. No.

Dr. B. A. Kamp, of Alden, has moved to Albert Lea, and will be associated with Drs. Palmer & Dunn.

Dr. F. W. Freyberg, of Mitchell, was elected president of the Mitchell (S. D.) District Society last month.

Dr. Elmer Foss, of Harlem, Montana, was married last month to Miss Elizabeth E. Currie, of Park River, N. D.

Dr. Benjamin F. Graham, of Minneapolis, died last week at the age of 73. Dr. Graham practiced in Minneapolis over thirty years.

Dr. E. R. Jellison has located at Cokato. Dr. Jellison was engaged in hospital work in China for ten years and is a graduate of Michigan.

Messrs. Sherman & Roche, druggists, of Canton, S. D., have purchased a commodious residence which they will remodel for hospital purposes.

Dr. Coleman N. Clark, of St. Charles, died last month at the age of 73. Dr. Clark had practiced in Winona County for many years and was highly respected.

The superintendent of the Swedish Hospital of Minneapolis announces that plans are being drawn for a $75,000 addition to the present hospital building.

Miss Bertha Johnson, for several years superintendent of the Red Wing Hospital, has become superintendent of King Edward's Memorial Hospital of Winnipeg.

St. Mary's Hospital, at Duluth, has received a gift of $60,000, one-half of which will be used in building an addition devoted to the free treatment of crippled children.

Dr. W. E. Richardson, who recently moved from Heron Lake to Slayton, has purchased a residence building in Slayton which he will remodel for hospital purposes.

The Swedish Hospital of Minneapolis has purchased a pulmotor, an instrument that seems to be needed, not only in every hospital, but in every village where there is no hospital.

Dr. Parks Ritchie, of St. Paul, died on Feb. 2, at the age of 67. The beautiful tribute paid to Dr. Ritchie by the medical faculty of the State University will be found in another column.

Dr. E. W. Senn, of Slayton, is doing post-graduate work at the New Orleans Polyclinic in eye, ear, nose, and throat. Dr. Senn sold his practice at Slayton to Dr. H. C. Dows, and will locate elsewhere.

The Northwestern District Medical Society of North Dakota, met last month at Minot, and after listening to and discussing two or three papers, elected officers as follows: President, Dr. Andrew Carr, Minot; Secretary, Dr. Taynor, Towner.

The Watertown District Society of South Dakota, at its annual meeting held at Watertown last month, elected the following officers for the current year: President, Dr. J. B. Vaughn, Castlewood; vice-president, Dr. H. A. Tarbell, Watertown.

Three members of the Minnesota State Board of Medical Examiners, whose terms expired, were reappointed last month by Gov. Eberhart. They were Dr. Charles Bolsta, of Ortonville; Dr. J. W. Andrews, of Mankato; and Dr. F. B. Hicks, of Grand Marais.

Dr. E. F. Ladd, who has done so much to make and enforce the pure food laws of North Dakota, has prepared a bill for the North Dakota legislature, which prohibits fraudulent claims in advertising almost everything that is made and sold. Such an act is made a misdemeanor.

The Methodist women of Rapid City, S. D., raised $10,000 in ten days toward the purchase of the Robinson Hospital building. The Woman's Home Missionary Society of the church will pay the $15,000 additional on the purchase price, and will spend $75,000 more for a new building and equipment.

The State Tuberculosis Sanatorium of Montana is now open for the reception of patients. The institution will receive charity patients at a charge of $5 a week, payable by the county sending the patient. Patients able to pay will be charged $15 a week, and $5 a week additional while the patient is confined to the bed.

The Aberdeen District Society of South Dakota met at Aberdeen last month and elected officers as follows: President, Dr. R. D. Alway, Aberdeen; vice-president, Dr. J. D. Jones, Groton; secretary, Dr. W. I. Farrell, Aberdeen; treasurer, Dr. J. E. Bruner, Frederick; delegates, Drs. J. D. Whiteside, R. L. Murdy, and C. O. Olson.

Dr. L. B. Wilson, of the Mayo Clinic, and Dr. Edward L. Tuohy, of Duluth, lectured before the University, in the popular medical lectures, on Jan. 28 and Feb. 8, respectively. Dr. Wilson spoke on cancer, and Dr. Tuohy on heredity and environment. Dr. M. P. Ravenel, of the University of Wisconsin, will give an address on March 11th.

Probably more medical bills will come before the present Minnesota legislature than were ever before presented in a single session. The principal reason for this is the fact that the people are aroused to the necessity of state action in the suppression of preventable diseases. The medical men of the state should watch these bills carefully, and help to get the best possible legislation.

The series of popular medical lectures being given this winter in all parts of the country under the aupsices of the American Medical Association and local medical societies, marks the greatest movement for improved health conditions the world ever knew, and, it is to be observed, they are coincident with the alleged efforts of the same body of men to form a "medical trust." It's queer!

The Ramsey County Medical Society held its annual meeting last month, and the reports of the various committees showed that the past year had been one of the best in the society's history. Twenty-two new members were received, and $3,000 was added to the building fund which now amounts to $34,000. The following officers were elected for the current year: President, Dr. C. J. Meade; vice-president, Dr. J. R. Armstrong; secretary, Dr. C. E. Smith, Jr.

The Nicollet Le Sueur County Society held its annual meeting at St. Peter on January 29th. Dr. George Baskett, assistant superintendent of the St. Peter State Hospital read a paper on "Insanity," and Dr. H. A. Hartung, of Le Sueur, read one on "Eugenics." Officers were elected as follows: President, Dr. H. A. Hartung, Le Sueur; vice-president, Dr. W. H. Powell, Kasota; secretary, Dr. F. P. Strathern, St. Peter; treasurer, Dr. J. W. Daniels, St. Peter.

The Upper Mississippi Valley Society met at Wadena on Jan. 21st. Dr. C. F. Coulter, of Wadena, delivered the president's address, his subject being "The Causes of Deafness, and Treatment of the Eustachian Tube." Dr. F. H. Knickerbocker, of Staples, sent in a paper on "Some Conclusion from Observations of Thirty Years." The following were elected officers for

1913: President, Dr. Wm. Reid, Deerwood; vice-president, Dr. W. A. Desmond, Akeley; secretary, Dr. A. W. Ide, Brainerd; treasurer, Dr. Paul Kenyon, Brainerd. The next meeting will be a joint meeting of four societies, the Upper Mississippi, the Park Region District, the Clay-Becker, and the Red River Valley.

PHYSICIANS LICENSED AT THE JANUARY (1913) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Bergan, Otto	U. of Minn.,	1912
Crothers, Bronson	Harvard,	1910
Flom, Andrew O.	U. of Minn.,	1912
Strobel, Wm. George	Rush,	1912
Thompson, Herbert H.	Jefferson, Pa.,	1909

BY RECIPROCITY

Arndt, Harry W.	Northwestern,	1912
Forbes, Robert S.	U. of Penn.,	1910
Ghent, Chas. H.	Northwestern,	1911
Guilfoyle, John P.	Northwestern,	1904
Langenderfer, F. V.	M. & S., Chicago,	1907
McHugh, Roderick F.	Marquette,	1912
Parsons, Forest L.	Rush,	1908
Schnacke, Roy A.	Hamline,	1909
Stangl, Philip E.	Rush,	1911
Steffen, Lyman A.	Rush,	1912
Stock, William J.	St. Louis U.	1906
Wray, William E.	P. & S., Chicago,	1897

PHYSICIANS LICENSED AT THE JANUARY (1913) EXAMINATION TO PRACTICE IN DAKOTA

UPON EXAMINATION

Benson, R. D.	Minneapolis, Minn.
Chernaucek, Samuel	Dickinson
Dean, Alfred	Grand Forks
Clark, W. E.	Harvey
Lees, H. D.	Esmond
James, J. B.	Page
Phillips, A. E.	Dickey
Treat, A. M.	Rolla
Zimmerman James	Neche

BY RECIPROCITY

Blegen, H. M.	Wahpeton
Ewing, S. E.	Kenmare
Linsen, Ivan M.	Forbes
Mertz, W. E.	Lidgerwood
Quigley, T. A.	Anamoose
Watson, E. M.	New Rockford

PHYSICIAN WANTED

A physician is wanted in a good, live town in North Dakota; Norwegian or German preferred. For particulars, address Charles N. Taber, Reynolds, N. D.

PRACTICE FOR SALE

In western Minnesota, $3,000 cash practice; town, 850; best farming community in state; large territory. Practice well-established but can be largely increased by doing surgery. Appointments alone will soon pay price asked, namely, $500 cash. No red tape. Possession immediately, retiring. For particulars, address S. P., care of this office.

HOSPITAL FOR SALE

A small modern hospital and a modern residence in a Minnesota town of 2,000, and prosperous farming community. Practice amounts to $4,500 and can be doubled by a good surgeon. Price of real estate, $8,000; which is less than the buildings are worth. Will introduce successor and give possession next fall. Address, U. S., care of this office.

HOSPITAL FOR SALE OR RENT

A new and modern hospital building in a North Dakota town in a fine and prosperous community, mostly Americans (Catholics), is offered for sale or rent at a moderate price. The opening is an excellent one for a doctor. Address S. G., care of this office.

SANITARIUM MANAGER WANTED

A good M.D. is wanted to act as physician and manager of a sanitarium near the Twin Cities. Write to E. J. Smith, 268 E. Annapolis St., St. Paul, Minn., giving particulars and salary expected.

PRACTICE FOR SALE

A well-established practice for sale in good town of two thousand population in southern Minnesota. German or Scandinavian can do well right from start. This is a snap that will bear inspection. Address D. W., care of this office.

PARTNERSHIP OFFERED

$2,500 buys a good partnership proposition for a good Scandinavian physician. Must be sober and industrious, of good hospital training, and a few years' experience. This is a good proposition for the right party and will bear looking into. Give all particulars in first answer. Address L. E., care of this office.

AMBULATORY SPLINT FOR SALE

An ambulatory with pelvic attachment, cost $55; never been used; will sell for $27.00. Chas. T. Granger, M. D., Rochester, Minn.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF NOVEMBER, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	6															1
Alexandria	2,681	3,001	5															1
Anoka	3,769	3,972	6													1		
Austin	5,474	6,960	4			1												
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	10	1		1							2	1				
Benson	1,525	1,677	2															
Blue Earth	2,900	2,319	2															
Brainerd	7,524	8,526	9													1		
Breckenridge	1,282	1,840	5													1	1	
Canby	1,100	1,528	1	1														
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	1															
Chatfield	1,426	1,226	2								1							
Cloquet	3,074	7,031	3											1	1			
Crookston	5,359	7,559	9	1	1									1		1		
Dawson	962	1,318	3															
Detroit	2,060	2,807	1															1
Duluth	52,968	78,466	60	4	1	9								1	3	7		1
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	7	1											1	1		2
Eveleth	2,752	7,036	11	3	1	2												1
Fairmont	3,440	2,958	5			1	2											
Faribault	7,868	9,001	8			1									2			1
Fergus Falls	6,072	6,887	9	1	1													
Glencoe	1,788	1,788	2															
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	5															
Hutchinson	2,495	2,368	2													1		
International Falls		1,487	2			1												1
Jordan	1,270	1,151	2															
Lake City	3,142	3,142	5													1		
Le Sueur	1,937	1,755	3		1	2												
Little Falls	5,774	6,078	5															
Luverne	2,223	2,540	7			1										3		
Madison	1,336	1,811	1													1		
Mankato	10,559	10,365	13	2												2		1
Marshall	2,088	2,152	7												1	1		
Melrose	2,591	2,591	1					1										
Minneapolis	202,718	301,408	281	24	7	31	2	1	1					5	9	23		21
Montevideo	2,146	3,056	2			1												
Montgomery	979	1,267	3															
Moorhead	3,730	4,840	3															
Morris	1,934	1,685	1													1		
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	0															
Northfield	3,210	3,215	3															
Ortonville	1,247	1,774	3															1
Owatonna	5,561	5,658	6			1									1			
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	7			1												
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	26	3		3										3		
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	7	1		2										1		
St. James	2,102	2,102	2															1
St. Paul	163,632	214,744	173	15	4	15	5						1	2	9	13	1	9
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	2															
Shakopee	2,046	2,302	3			1												
Sleepy Eye	2,046	2,247	3															
South St. Paul	2,322	4,510	2															
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	11			2										1		1
Thief River Falls	1,819	3,174	2	2														
Tower	1,111	1,111	1	1														
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	3															
Virginia	2,962	10,473	6											1				
Wabasha	2,622	2,622	*															
Warren	1,276	1,613	2	1														
Waseca	3,103	3,054	1															
Waterville	1,260	1,273	2															
West St. Paul	1,830	2,660	*															
Willmar	3,409	4,135	1													1		
Winona	19,714	18,583	24	2		1										1		3
Winthrop	813	1,043	1															
Worthington	2,386	2,385	2	1														

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian			0															
Aitkin	1,258	1,112	2	1														1
Akeley	1,719	1,638	0															
Appleton			0															
Belle Plaine	1,184	1,221	0															
Biwabik	1,121	1,204	1															
Bovey		2,690	2												1			
Browns Valley		1,377	1															
Buffalo	721	1,058	0															
Caledonia	1,040	1,227	1															
Cass Lake	1,175	1,372	0															
Chisholm	546	2,011	2															
Coleraine		7,684	1			1												
Delano		1,613	0															
Farmington	967	1,031	0															
Fosston	733	1,024	1													1		
Frazee	864	1,055	1								1							
Glenwood	1,000	1,645	0															
Grand Rapids	1,116	2,161	1															
Hibbing	1,428	2,239	15		1			1			1				2			2
Jackson	2,481	8,832	3			1												
Janesville	1,756	1,907	0															
Kenyon	1,254	1,173	1															1
Lake Crystal	1,202	1,237	1															
Litchfield	1,215	1,038	4	1												1		
Long Prairie	2,280	2,333	1															
Madelia	1,385	1,250	*															
Milaca	1,272	1,273	0															
Mountain Lake	1,204	1,102	1															
Nashwauk	959	1,081	2															1
North Mankato		2,080	0															
North St. Paul	939	1,279	0															
Osakis	1,110	1,404	0															
Park Rapids	917	1,013	3													1	1	1
Pelican Rapids	1,313	1,850	1			1												
Perham	1,033	1,019	4															
Pine City	1,182	1,376	0															
Plainview	993	1,258	2													1		
Preston	1,038	1,175	1															
Princeton	1,278	1,193	0															
St. Louis Park	1,319	1,555	1			1												
Sandstone	1,325	1,743	1	1														
Sauk Rapids	1,189	1,818	2			2												
South Stillwater	1,391	1,745	0															
Springfield	1,422	1,343	1	1														
Spring Valley	1,511	1,482	2															
Wadena	1,770	1,817	7															
Wells	1,520	1,820	*															
West Minneapolis	2,017	1,755	3											1				
Wheaton	2,250	3,022	0															
White Bear Lake	1,132	1,300	1															
Windom	1,288	1,505	*															
Winnebago City	1,944	1,749	2		1													1
Zumbrota	1,816	2,555	1															
	1,119	1,138																
STATE INSTITUTIONS																		
Anoka, Asylum			0															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	1		1										1		
Fergus Falls, Hospital for Insane			12	4		2												
Hastings, Asylum			0															
Minneapolis, Soldiers' Home			5			1										2		
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			9	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			6	1	2									1				
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			597	40	11	40	3	2			8	1	1	6	22	41	1	65
Total for state			1524	115	31	127	12	5	1	0	11	1	4	20	52	113	4	118

*No report received. Registrar not doing his duty.

110 stillbirths not included in above totals.

Medical Opinion Concerning Coffee

is more concrete, definite, decisive today than it ever was before.

The Doctor of the present time **knows definitely** why he must, under certain conditions, for the best interests of his patient, forbid coffee as a beverage.

He knows, for example, that the active principle, Caffeine, in coffee, acts directly as a stimulant on the heart and, in this way, increases the blood-pressure when it might be desirable to relieve an already too-high tension.

Acting on the heart in this definite way, if used as a routine stimulant, coffee, in time, must inevitably produce more or less irregularity of the heart's action, and thus be the fore-runner of greater or less serious chronic trouble (some persons being more susceptible than others.)

The logical, easy way to **lead** the patient out of the impending danger (be it of whatsoever degree) is to prescribe the well-known, wholesome and agreeable drink, **POSTUM.**

Made of clean, hard wheat and the juice of Southern sugar-cane, this cereal beverage is **not** in any way harmful, but, in a degree, nutritious.

Postum now comes in new, convenient form called

Instant Postum

It is percolated at the factory and reduced by special, sanitary process, to a concentrated powder. A teaspoonful of the powder in a cup with **hot** water produces a perfect cup **Instantly.**

The flavor of "Instant Postum" is always the same—refreshing, delicious, wholesome, satisfying.

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Postum Cereal Company, Limited, Battle Creek, Michigan, U. S. A.

PUBLISHER'S DEPARTMENT

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The use of cereals at the breakfast table and for children and convalescents, is rapidly growing and has become well-nigh universal. The absence of flavor in many of the cereals has been a great drawback, and one soon thinks the best of them are very flat and unappetizing.

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is the Betz plant where physicians, surgeons and hospital supplies are made on a large scale and imported on even a larger scale. Every kind of instrument and apparatus and office and hospital furniture demanded by medical men, can be had of this house at the most attractive prices.

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The Victoria Sanatorium, located at Colfax, Iowa, may be too near to us to fully enjoy the reputation it deserves. Here is a homelike, modern building of 70 rooms, with mineral waters equal to the best found in Europe, with systems of treatment that have made many European health resorts famous the world over, and we too often forget that our patients can get here what many of them need and seek in the east and abroad.

The Victoria is a modernly equipped, ethical institution, conducted in an exceptional manner, and worthy the largest patronage. It has demonstrated its value, and it offers many classes of sick the opportunities for treatment not to be obtained elsewhere in the Northwest.

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We believe there can be no doubt in the mind of any medical man that the results obtained in a large class of cases by mud baths is very remarkable and very gratifying. The rundown business man, who no longer responds to medication, the dyspeptic, and the rheumatic take these baths and often show in a week's time results that are very striking and often actually permanent.

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Jordan is only a couple of hours' ride from the Twin Cities, and its sanitarium should be known by all physicians in the Northwest.

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It is exceedingly encouraging to see the admirable example in conducting hospitals set many years ago by the Catholic sisterhood followed extensively by other denominations. The Methodists and Lutherans are especially to be commended for their work in the Northwest.

One of the best of these excellent church hospitals is St. John's German Lutheran of St. Paul. The staff is composed of men of the highest standing in the profession, and the management of the hospital is unexcelled, and the institution is open to everybody in need of a hospital.

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Climate *per se* will not cure any case of tuberculosis, but only a mild and equable climate can sometimes furnish the conditions which make for the cure of this disease. A home in the Sierra mountains with an altitude of about 4,000 feet and with the conditions which medical science can throw around the tuberculous, offers about the best opportunity to cure this disease that medical science knows.

Such conditions are found in the Alta Sanatorium, located in Placer County, California, and under the management of Dr. Burt F. Howard.

Our readers should know more of this institution and its work.

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There is nothing more attractive than home-grown shade-trees, fruit-trees, shrubbery, and gardens; and there is nothing more annoying than to have one's efforts made to get these things wrecked on poor beginning stock or seed. The only guarantee that one has against such a calamity is the character of the man or firm one deals with, and character is not made in a day or based on capital stock.

The Jewell Nursery, of Lake City, Minn., has been established nearly 50 years, has a plant of 1,500 acres, and a reputation for doing things right, of so long-standing and so well recognized that we call it character.

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A new agent that will yield 90 per cent of recoveries out of a total of 4,000 of infection is worthy of consideration. The Phylacogens, prepared by Parke, Davis & Co., are credited with this performance. Reports of the success attending the administration of these bacterial derivatives have been appearing with much frequency of late—reports so startling in their nature that one would hesitate to credit them were they not known to emanate from competent and conservative practitioners. These reports compel the belief that in the Phylacogens we have a group of truly remarkable agents—products that will be makers of medical history; that are capable of producing results that may be designated as most unusual.

The Phylacogens are rheumatis Phylacogen, erysipelas Phylacogen, gonorrhea Phylacogen, and pneumonia Phylacogen.

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THE TREATMENT OF HERNIA IN CHILDREN*

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CHICAGO, ILLINOIS

Twenty-six years ago I made two clinical observations in connection with herniæ in children which caused me to investigate this subject more closely, and this investigation resulted in demonstrating a number of fallacies which had crept into the subject because of the fact that treatment in many fields was changing from medical to surgical, or, better, the medical profession was beginning to forget that spontaneous cures are the rule in many conditions, and that actual interference is necessary in only a small proportion of cases so long as nothing is done to prevent nature from doing its part in accomplishing a cure.

One of these observations was made in children suffering from strangulated hernia in whom the hernia was reduced and recurrence was prevented by placing the child in the exaggerated Trendelenburg position. It happened that in several of these cases an operation was refused by the parents, consequently the child was in each instance placed in bed, the foot of the bed was elevated from fifteen to thirty c.m. according to its length, the elevation being not too high for the comfort of the patient, but sufficient to place the surface of the bed at an angle of from 30° to 50°. In each one of these cases the hernia healed permanently within three weeks.

In a second series of cases in which there was present inguinal hernia complicated with phimosis, and in which the parent consented to the operation of circumcision, but objected to herniotomy, the patients had the former operation performed and were placed in bed with the foot of the bed elevated, and again to my surprise I found that these herniæ healed permanently without operation.

Having my attention directed to these peculiar conditions, I made a study of the literature and found that the subject had been studied in a most exhaustive way by Malgaigne in connection with the surgical service of the French Army sixty years ago. These statistics show that there is one hernia for every twenty-one children during the first year of life, that this proportion remains true up to the age of six years, and that then there is a rapid decrease until there is but one hernia in seventy-seven children at the age of thirteen. During the years immediately following there is a constant and rapid increase of herniæ in the male, so that at the time of recruiting the armies, which occurs at the ages of 20 and 21, there is one hernia in thirty-two males. In the female there is no further increase until the beginning of the child-bearing period, when there is at once quite a sudden increase in the number. At the age of 28 there is one hernia for 21 persons; at the age of 30 to 35, one hernia for 17; at 35 to 40, one for 9; at 50, one for 6; at 60 to 70, one for 4; and at 75, one for 3. From this stage on the patients suffering from hernia seem to die more rapidly than the remaining

*Oration in Medicine, delivered at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

proportion of the population, so that from the age of 80 to 85 there is but one hernia in fourteen persons, from 85 to 86 but one in twenty-three, and of those whose age exceeds 86, but one in fifty-six. It is plain, however, that the only time at which we can be absolutely certain that the statistics are correct is at the age between 20 and 21 in the male, because at this time all the males are actually examined by competent surgeons.

In studying some of the others of the older authors, I found that these had come to the same conclusions, although none of them had at their command so large a number of cases for observation. The large material of Malgaigne showed that without surgical treatment over 75 per cent of all herniæ healed spontaneously before the child had reached the age of 12 to 13 years; also that at this age and during the following six or eight years there are almost no herniæ in girls, while in boys there is a very rapid increase during the period, a condition which has been attributed to the fact that during these years girls are generally well cared for among all classes, while the boys learn their trades, indulge in rough sports and are likely to exert themselves beyond their strength.

If the relative number of herniæ changes from one to twenty-one children up to the sixth year of age to one in seventy-seven at the age of 13, 73 per cent of all children suffering from hernia at the age of 6 must have healed spontaneously by the age of 13, even if there were no herniæ formed at all during this period. This, however, is not the case, as more than one-half the life of these children has, in the meantime, been spent, and everyone who treats such cases knows from personal experience that many of the children coming under observation between the ages of 6 and 13 are suffering from herniæ of recent date. Consequently, it is certain that much more than 73 per cent of all herniæ at the age of 6 heal spontaneously before the child is 13.

We have found that quite a number of children become ruptured between the ages of six and thirteen as a result of long-continued cough, especially in winter when many suffer from bronchitis and from whooping-cough, which is more common during this period of the child's life because this condition is more frequently the result of contagion in school than from any other source.

According to these statistics we would consequently find, approximately, the following proportion of the entire population ruptured at the following ages: at 1 and 6 years, 5 per cent; at 12 years, 1.3 per cent; at 20 years, 3 per cent; at 28 years again 5 per cent; at 35 years, 6 per cent; at 40 years, 11 per cent; at 50 years, 17 per cent; at 70 years, 25 per cent; at 75 years, 33 per cent; at 85 years, only 4 per cent. It is likely that the rapid decrease from the 75th to the 85th year is due to the fact that many of the old men suffering from hernia also suffer from hypertrophy of the prostate gland, and that the mortality is very high in patients suffering from this complication.

Following the above percentages in connection with the histories of cases as they come under our clinical observation, it becomes clear that one does not deal with the same class of individuals in each one of these various groups of hernia patients. It is true that there are certain very definite predisposing and other equally definite exciting causes which will be considered later, but the predisposing causes are frequently eliminated, and the exciting causes may never occur in many individuals, consequently each successive period contains only a relatively small proportion of the individuals belonging to the first period. In our experience only about 5 per cent of the adults coming under our care for treatment of hernia give a history of having had herniæ during childhood. This corresponds almost exactly with the observation of Berger, who states from his statistics that of 9,967 adults with hernia only 479 gave a history of having suffered from this condition since childhood. Bull and Coley's statistics show almost identical proportions. Out of 15,000 adults with hernia, only 700, or less than 5 per cent, have been ruptured since childhood. This proportion is borne out in a remarkable manner by the fact that the 400 cases which the latter authors had selected for operation, were chosen from 8,000 children suffering from hernia, which indicates that there were not more than 5 per cent of the children examined in whom it seemed necessary to treat the condition with operation. All of these facts show that the tendency toward closure of the natural abdominal openings, which should have been completed before birth, continues during childhood, if there is not a very marked anatomical defect beyond the fact that the peritoneal projection into the canal has not been closed, and provided also that the abnormal intra-abdominal pressure has been eliminated.

It is worthy of note that Malgaigne's statistics

were collected sixty years ago, at a time when, with the few exceptions noted above, no herniæ in children were treated surgically, and, in fact, very few of these received any form of treatment. Judging from these and other statistics, it seems reasonable to conclude that probably 95 per cent of all herniæ in children will heal spontaneously, or at least without surgical treatment, if proper conditions are secured. This has also been borne out by my own experience. In explanation of this fact, a description of the changes which take place as the child outgrows its inguinal hernia, in an interesting paper by Thomas Charles Martin, has seemed of especial interest to me. He shows that in the broadening of the pelvis the parietal peritoneum enlarges at the expense of the mesentery, the latter being thus shortened prevents the entrance of the intestines into the inguinal canal, and at the same time there is a displacement of the internal ring, which still further aids in curing the hernia.

The more recent articles seem to be uniform in considering the subject from an entirely different standpoint. They base the proposed surgical treatment upon the fact that herniæ in children can be cured easily and safely by surgical operation, that herniæ occur in individuals in whom the inguinal canal was not closed normally during fetal life, that the treatment with trusses gives rise to great discomfort, and upon the further theory that if not operated on in childhood these patients will require operation for the relief of hernia later in life. This theory has, however, not been borne out by facts.

I have reviewed nearly one hundred articles on this subject; the most important ones are by Harold Styles and Judd. Most of these articles report large numbers of successful cases, describe the technic of the operation, and advise early operation because of the reasons mentioned above. Many advise great care not to traumatize the cord and testicle for fear of causing sterility. None of them are of sufficiently long standing to demonstrate that sterility does not follow. As most of these herniæ are unilateral it would of course not be of any great harm if the organ on one side were impaired in its functions.

The causes of hernia in children can be classified in the following order according to their importance: (1) non-closure of inguinal canal; (2) congenital separation or weakness of structures surrounding the inguinal, femoral, or umbilical opening, frequently hereditary; (3) abnormal length of mesentery and omentum; (4) abnormal intra-abdominal pressure due to (a) faulty nutrition, (b) constipation, (c) phimosis, (d) coughing, (e) vomiting, (f) crying and straining, (g) traumatism, and (h) over-exertion.

It may be worth while to consider these causes more in detail.

1. The natural defect which results from the descent of the testicle through the inguinal canal must be considered a most important predisposing cause, which accounts for the much greater frequency of inguinal hernia in the male than in the female.

2. Next to this comes a further increase of a tendency to the formation of hernia due to an inherited weakness in the structures of the abdominal wall. Macready places this hereditary defect at 25 per cent of all cases, while Kingdon agrees with Malgaigne in placing heredity as an important factor in 33 per cent of all cases.

3. It is doubtful whether the long mesentery is primarily a predisposing cause, or whether it occurs secondarily from the stretching which results from gaseous distension due to digestive disturbances.

In our cases we have very commonly found an uncommonly long omentum in the same cases in which we have found a long mesentery.

4. *Abnormal intra-abdominal pressure.*—Undoubtedly the most important direct cause of herniæ in children is an abnormal intra-abdominal pressure, as pointed out by Eccles, Langton, and others. This may be due (1st) to gaseous distension of the stomach and bowels, caused by faulty feeding and consequent indigestion; (2nd) to great pressure exerted during the act of defecation, on account of constipation; (3rd) to the same condition due to obstruction on account of phimosis; (4th) to severe vomiting; (5th) to long-continued coughing. In connection with all of these conditions, it is to be remembered that children suffering from digestive disturbances necessarily suffer much pain; and the exertion incident to crying will greatly increase the existing abnormal intra-abdominal pressure. In order to quiet the child the mother will nurse it at irregular intervals, and this will again increase the digestive disturbances, and this, in turn, the intra-abdominal pressure and pain.

Increased Intra-Abdominal Pressure Due to Coughing.—I have observed cases in which the herniæ healed regularly during the summer

months, but reappeared in the autumn as soon as the children acquired coughs, which lasted almost all winter. By the time spring arrived the herniæ had attained considerable size, only to heal again during the summer, while the patients were free from coughs. By placing these children in bed and elevating the lower end of the bed sufficiently to make an angle of 20 to 30 degrees, giving them remedies to relieve the cough, the herniæ disappear within six weeks. Then advising the mothers to give the children cold baths every day, and to bring them for inspection often enough to keep the condition under control, and giving them cod-liver oil and malt extract as soon as the cold weather appeared, they went through the next winter without coughs and consequently without recurrence of the herniæ. In the same manner children who are suffering from obstruction to the upper air-passages on account of enlarged tonsils, nasal adenoids, or polypi and consequent conditions, will rapidly recover from their herniæ if these conditions are relieved by proper treatment.

Increased Pressure Due to Gaseous Distension.—It is very usual for the children brought into the hospital for the treatment of herniæ to have a greatly distended abdomen, due to digestive disturbances resulting in gaseous distension of the stomach and intestines. If this occurs in nursing infants, the mother should be instructed to nurse the child at regular times. Her own habits and diet should be regulated. If the child is constipated, this should be relieved. Aside from this, the mother must be instructed never to carry the child, because she will not follow the advice of keeping it in the inverted position, and consequently will increase the intra-abdominal pressure whenever she picks up the child. It should sleep in a separate bed with the lower end of the bed elevated sufficiently to make an angle with the floor of about 20 to 30 degrees. This will keep the hernial sac empty of intestines and omentum, and will very greatly assist in the obliteration of the hernia. If the mother's milk continues to give rise to indigestion, notwithstanding every precaution available for making it wholesome, it is often best to place the child partly or wholly on artificial food, at least for a time. Above all things, however, it is important to impress the mother with the necessity of being regular in feeding the child and to again place it in bed as soon as it has been nourished, or, better still, to lean over the child's bed and nurse it without disturbing its inverted position.

I have repeatedly placed these children in the hospital and sent the mother, who was exhausted from over-work and care of the sick child, home to rest, permitting her to come to the hospital morning, noon, and night to nurse the child. After the first day or two the mother becomes rested, her journeys to and from the hospital compel her to be out of doors, and the fact that she is relieved of the care of the child gives her the necessary rest and sleep. In the meantime, her milk improves, the child becomes accustomed to lie quietly in bed and to take its nourishment regularly, its digestion is improved, and the gaseous distension disappears, and with it the abnormal intra-abdominal pressure, which is still further relieved because the child sleeps most of the time and seldom cries. After the child has been in the inverted position for a few days the hernial sac remains empty so long as it remains in this position, even if the child strains and cries.

Increased Intra-Abdominal Pressure During Defecation Due to Constipation.—Children suffering from hernia should not be allowed to become constipated, because the increased intra-abdominal pressure necessary to accomplish the evacuation of the bowels in constipation in itself is sufficient to prevent a hernial opening from closing. This is one of the most common causes of hernia in children, and one of the easiest ones to be eliminated.

Increased Intra-Abdominal Pressure Due to Obstruction to the Passage of Urine as a Result of Phimosis.—That phimosis is a frequent cause of hernia in children is plain from the fact of the greater frequency of umbilical hernia in male than in female children. The greater frequency of inguinal hernia in male children can readily be accounted for by the difference in the anatomic structures, but this is not the case in umbilical herniæ, which are shown statistically also to be more common in male than in female children.

It has lately been suggested that phimosis can not be an important cause of hernia in children, because if this were the case the Jewish nation must necessarily be much freer from hernia than others. This is, however, not the case. In fact, it has been shown by statistics, especially in Russia, that at the age of 20 to 21 proportionately more Jews than Christians are afflicted with hernia. Eccles, in an article on this subject, has

laid stress on the uselessness of circumcision for the cure of hernia, his argument being based on the fact that Jews are no less likely to have hernia than Christians. On the other hand, Krassnow found, on examining recruits from two departments for the Russian Army, that there were relatively five times as many herniæ in the Jews who presented themselves for examination as in the Christians. Upon investigation, however, a number of the former confessed that they had produced their herniæ artificially in order to secure rejection from military duty. Granting this to be the cause of the great increase, it could have no bearing on the number in Jewish patients in America and England, where there is no compulsory military service. This, however, can be explained by the fact that the Jews are more subject to hereditary diseases of all kinds, on account of the system of intermarriage in families.

If the phimosis is relieved, either by circumcision or by dilatation of the prepuce, and the child kept in bed for four to six weeks with the foot of the bed elevated, the hernia will usually be cured. During the same time the diet and bowels must be carefully regulated, and it is doubtful which of these three means has been of the greatest importance in obtaining a cure. It is surprising how rapidly the opening will contract under these conditions; moreover, during this time the patient acquires regular habits, which can afterward be easily maintained if their importance is explained to the mother, and especially if it is impressed upon her that by following the directions, which will naturally appeal to her on account of their simplicity and reasonableness, she will be able to make operative treatment unnecessary.

That all of these conditions are of the greatest importance can be demonstrated practically with the greatest ease by comparing the relative frequency of hernia in children of the very ignorant poor, of the intelligent poor, and of the well-to-do. In the former class, after the child is weaned but little attention is given to its diet, to the conditions of its bowels, and to the condition of the prepuce in boys; and consequently herniæ are very common, while they are much less common in the second, and still less so in the third class, as has been shown by Bertillon from carefully compiled statistics and it is a matter of experience with every surgeon who treats these various classes.

Strangulated Hernia In Children.—If a strangulated hernia in a child can not be easily reduced, under complete anesthesia, by taxis, the child being held in the inverted position during the manipulations, it is undoubtedly wiser to relieve the conditions by an operation, because the intestinal wall in children is very delicate and easily injured by taxis. In my experience the hernial opening has always been very narrow; still, I have always succeeded in replacing the hernial contents without enlarging the opening by first drawing out more intestine and then gradually replacing it, the child being placed in the inverted position.

If the hernia is an acquired one, which is not so common in children as in adults, the sac is carefully dissected free to a point within the abdominal cavity. It is then ligated and removed, and the ligated stump is permitted to retract into the peritoneal cavity.

If the hernia is congenital it is best to dissect up the neck of the sac for about an inch, and to leave the portion surrounding the testicle to form a tunica vaginalis, while the upper portion is carefully dissected up to a point within the peritoneal cavity. It is then ligated, the superfluous portion is cut away, and the stump is permitted to retract into the peritoneal cavity, as in case of acquired hernia. It is thus necessary only to close the skin, and the opening will close completely in from four to six weeks if the child is kept in bed with the foot of the bed elevated. In support of this simple operation, R. H. Russell cites the fact that inguinal hernia in children occurs because of the presence of the hernial sac, which has remained after the testicle descended into the scrotum. Consequently all that is required for the purpose of curing this hernia permanently is to completely remove the sac. His experience as to results, which has been fully borne out by our own, seems to justify this view. H. O. Marcy has, for many years, repeatedly directed attention to this condition. That equally satisfactory results can be obtained by following Bassini's or Halsted's method can easily be seen, especially from the statistics of Coley and those of Halsted and Judd. However, Funke and others have noticed severe atrophy of the testicle following herniotomies in children, in which an attempt was made to close the inguinal canal.

If it is possible to reduce a strangulated hernia in children by taxis, the irritation caused, primarily, by the strangulation and, secondarily, by the manipulation, seem to favor closure of the

hernial opening. I have repeatedly seen this occur within six weeks if the child was kept in bed in the inverted position.

The most unfavorable cases are those in which the abdominal walls are congenitally weak, a condition which seems to be hereditary in many patients. Again, of these cases those in which there are three distinct areas of weakness,—the abdomen of the three hills described by Malgaigne,—seem to be least favorable of all. In this class surgical treatment usually becomes necessary, and here it is well to perform the typical Bassini or Halsted operation, or that described by Ferguson at the meeting of the American Medical Association in June, 1899, the important point in the operation being to secure an accurate closure of the inguinal canal to make up for the natural deficiency in the tissues. Two precautions should be borne in mind: (1) The stitches should be tied very loosely, in order not not to cause pressure necrosis of the already weakened tissues; (2) The tissues of the cord in the male should be manipulated very carefully for fear of causing an atrophy of or preventing the full development of the testicle. This is especially important in this class of cases, because herniæ in congenitally defective patients are very likely to be double, and, if both testicles should atrophy, the patient would be permanently injured. In this class very frequently no truss will retain the hernia.

Reducible Hydrocele.—It is not uncommon to find a hernial sac opposite the internal inguinal ring, and the portion beyond distended with fluid in the inguinal canal, preventing the closure of the latter opening. It is, of course, impossible for the patient to wear a truss with comfort, and unless the fluid is removed this cannot heal. Simply making a small incision over the inguinal canal, ligating the upper end of the sac opposite the internal ring, cutting away beyond this ligature, and closing the wound in the skin, have, in my experience, invariably and permanently cured these cases. In a number of these I have obtained the same result by tapping the sac and injecting five drops of 95 per cent carbolic acid, but the other operation seems preferable. In some instances it is not possible to excise this sac, because it cannot be separated from the cord. In these cases it will suffice to split it longitudinally and evert the edges around the cord, securing them in place with fine catgut. This places the serous surface of the sac in apposition with a raw wound-surface, which will prevent reaccumulation of fluid.

There is but one other condition which justifies the operative treatment of hernia in children, and that is, when, on account of adhesions, the hernia, although not strangulated, is still irreducible. In this class of hernia a truss cannot be worn with benefit, because it presses on the hernial contents, usually omentum, instead of the empty canal; moreover, the opening not being empty, its closure is necessarily impossible unless the adhesions are absorbed, which, if occurring at all, necessarily require a long space of time. In this variety of hernia, unless it be complicated with the form just described, it is not necessary to do anything further than the operation indicated in case of strangulated hernia. The hernial sac being removed, the opening will again close spontaneously.

In the operation for the relief of femoral hernia in children it is never necessary to do anything beyond dissecting out, ligating, and cutting away the sac, permitting the stump to retract into the peritoneal cavity, and closing the skin. These cases are exceedingly rare. I have never seen a strangulated femoral hernia in a child, and only once an irreducible one, due to an adherent omentum, which necessitated an operation.

Use of Trusses.—Too much stress has been laid on the importance of trusses in the treatment and too little on removing the causes of hernia in children.

It is far easier to retain a hernia, and thus encourage the closure of the hernial opening, by first relieving the abnormal intra-abdominal pressure and then applying the truss simply as an aid, than it would be to accomplish the same object by the use of the truss alone.

If it is at all possible, it is always best to place the child in bed in the inverted position and to reduce the intra-abdominal pressure by the methods which have been described above, before making use of a truss at all. Then, if it is not possible to maintain this position sufficiently long to obtain a cure, it is well to apply a perfectly fitting truss, which should make only just enough pressure to retain the hernia.

The fact of using a truss does not make the other precautions unnecessary. The child should still be cared for so as to remove abnormal intra-abdominal pressure from every cause, and the foot of its bed should still be elevated, in order to make use of gravity in keeping the hernia

empty and to facilitate the shortening of the mesentery.

My observations and a study of the available literature on this subject have led me to accept the following conclusions:

CONCLUSIONS

1. The development of herniæ in children is favored by (a) faulty development of the abdominal wall; (b) insufficient strength in the tissues involved in closing the umbilical, inguinal, or femoral openings; (c) abnormal intra-abdominal pressure; (d) unclosed condition of the tunica vaginalis.

2. The causes (a) and (b) are frequently inherited.

3. The abnormal intra-abdominal pressure is due (a) to gaseous distension resulting from improper feeding; (b) to the exertion necessary to evacuate the bladder on account of obstruction due to phimosis; (c) to severe pressure necessary in defecation, in case of constipation; (d) to severe, long-continued coughs; (e) to vomiting; (f) rarely to traumatism or over-exertion.

4. Approximately 95 per cent of all cases of hernia in children will heal spontaneously if the abnormal intra-abdominal pressure is relieved and the hernial sac is kept empty.

5. This can be accomplished by means of trusses or, much more rapidly in inguinal and femoral hernia, by placing the child in bed with the foot of the bed elevated. The time required usually does not exceed six weeks and in most cases the hernia will heal upon relieving the abnormal intra-abdominal pressure and simply placing the child in bed with the foot of the bed elevated each night from 6 P. M. to 8 A. M. the following morning for several months.

6. Children with a tendency to the formation of hernia should be guarded against developing coughs.

7. Their food should be given at regular times and chosen with a view to avoiding gaseous distension.

8. Constipation should be entirely prevented.

9. In the case of boys, phimosis, if present, should be relieved by operation.

10. Badly nourished and badly cared-for children of the poor should be treated in hospitals, being placed in bed in the Trendelenburg position, the cause of increased intra-abdominal pressure being removed at the same time by proper diet and treatment.

11. Operation is indicated (a) in strangulated hernia; (b) in irreducible hernia due to adhesions; (c) in case the opening is unusually large in a free hernia, especially if the condition is hereditary; (d) in reducible hydrocele; (e) in cases with undescended testicle, unless they show a tendency toward spontaneous cure.

12. Except in class (c) the operation should consist simply in carefully dissecting out the sac or, in certain cases of inguinal hernia, the neck of the sac, ligating it within the abdominal cavity, cutting away the sac and permitting the stump to retract within the abdominal cavity, and closing the skin wound.

13. In class (c) the Ferguson-Andrews operation is indicated.

14. In class (e) the Bevan - Ferguson - Andrews operation is indicated.

15. The recumbent position, with the foot of the bed elevated, is of very great importance in the after-treatment of operative cases, as well as in the non-operative treatment of herniæ in children.

16. In young children who will not remain in bed with the foot of the bed elevated, this position can usually be maintained by applying rubber adhesive straps to both lower extremities and having these held in a vertical position by means of weights and pulleys.

17. If the child cannot be kept in this position, a well-fitting truss should be worn night and day until there has been no protrusion for at least six months; at the same time the necessary precautions must be constantly taken to guard against abnormal intra-abdominal pressure from any cause.

OBSERVATIONS ON GERMAN SURGERY*

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During the past summer it was my privilege to make a most instructive and enjoyable visit to some of the renowned clinics of Germany.

The twenty-five university centers in Germany seem to be classified according to equipment, wealth, number of students, and extent of population. As opportunity arises the chiefs of clinics are advanced in the scale of appointments, or they pass on to other universities and higher positions. The better of the first assistants are chosen to fill the vacancies.

The hospitals are large and complete as to equipment, usually occupying a space of about four of our city blocks. The large park-like grounds with plenty of air and sunlight make ideal surroundings for the hospital buildings, which are usually constructed on the pavilion system. The location of hospitals in Germany is in marked contrast to that in our own country, where hospitals are often built in the business centers without ground space, as modern skyscrapers, with the discomforts of heat, smoke, dust, and noise, air and light being secondary considerations.

The Virchow Hospital in Berlin has been constructed recently and is a model in detail. However, in Frankfurt-on-Main is one of the best equipped and most modern hospitals that we visited. It has been remodeled from an old institution. Rehn is the chief surgeon here, and he has a large clinic.

The hospitals are all well equipped with modern Roentgen apparatus and this department of diagnostic work seems to have been developed to a wonderful degree of perfection. In Frankfurt we saw excellent radiographs taken in $\frac{1}{200}$ of a second. The work of Haudick of Vienna in the reading of the radiographs and in the interpretation of fluoroscopic pictures in cases of gastro-intestinal diseases, has occasioned much interest.

A great deal of care and thought has been given to the arrangement of the operating-rooms, and especially to the lighting system, several of them having the so-called Jena system, with light from a powerful arc focused onto mirrors. In some instances these mirrors are fixed, and in others they can be tilted. There is considerable water in evidence in most of the operating-rooms, but on the whole they are much drier than during the antiseptic period of surgery. In most of the clinics the immediate site of operation is prepared by the benzine and iodine method.

The surgeons are exceedingly well prepared for their work. They have served long apprenticeships, and they all take pride in speaking of the well-known men with whom they studied and served as assistants. They are especially well informed concerning the world's medical literature. As a rule, they may be said to take themselves and their work rather seriously and impress the fact upon others. Very few of the surgeons change their clothing before operating, often taking off but the coat and vest, slipping a rubber gown over their clothing, and drawing a pair of short rubber boots over their footwear.

In all the operating-rooms are a great many assistants, and after the essential details have been carried out by the master surgeon, the case is passed on to the first, second, and third assistant surgeon, who completes the work. In Bier's clinic in Berlin, which is one of the largest in Europe, we counted twenty-seven persons,—surgeons, internes, orderlies and nurses,—engaged in operating upon or completing the work on three patients at one time. There was opportunity to visit but three of the general surgical clinics in Berlin which were conducted by Bier, Hildebrand, and Körte. We also visited the clinics of Bumm and Franz, which are devoted to gynecology, and that of Krause, who specializes in the diseases of the brain and nervous system. He is also doing much general surgery.

The excellent team-work of those engaged in diagnosis in all of the departments is worthy of notice, each diagnostician taking great pride in the part he plays in the making of a diagnosis. He follows his cases to the operating-table to witness the conditions found upon exploration. In abdominal surgery much time is given to making an exact diagnosis, rather than the diagnosis of a surgical condition, and the operation is carried out strictly with reference to this.

Very little general exploration is made, although the incisions for abdominal work are generous ones, permitting ease of investigation and manipulation. Such incisions do not appear nec-

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essarily to lead to a long confinement in bed. The period of convalescence has been greatly shortened, particularly in Kümmell's clinic in Hamburg, who has most of his patients, not previously bed-ridden, up for a few minutes the day after operation and for an increasing period each day thereafter.

Franz of Berlin, an exceedingly clever operator, makes use of the transverse or Pfannenstiel incision in abdominal cases, and secures a good exposure after a very vigorous stretching of the incision. He favors spinal anesthesia.

Many cases of diseases of the stomach are to be seen in all of the clinics and a correct diagnosis of the condition is the rule.

Ulcers are often treated by resection of a complete ring of the stomach, including the ulcer. The two portions of the stomach are reunited and a posterior gastro-enterostomy is made when there is interference with the drainage of the stomach.

In carcinoma of the stomach partial gastrectomies by the Billroth No. 2 method are common operations, although Hofmeister of Stuttgart uses a modified Billroth No. 1 by attaching the jejunum. He protects the fatal point of union of stomach and jejunum by continuing the suturing of the small intestine over the suturing of the stomach, the jejunum being brought through the mesentery of the transverse colon to which the anastomosis is attached by sutures at the close of the operation.

They have evidently had but little trouble in German clinics from hernia of the small intestine through the opening in the transverse mesentery of the colon following gastro-enterostomy for ulcer since rarely did we see sutures applied to prevent the possibility of this accident.

Free use is made of the Pagenstecker linen silk or catgut suture material, some of the surgeons making an anastomosis in a very few minutes with a single row of interrupted mattress sutures of catgut or silk; others, however, use the double row of sutures with the third row posteriorly for a more careful control of hemorrhage.

Bumm in Berlin and Wertheim in Vienna make complete abdominal operations for cancer of the uterus. In Schauta's clinic a perineal operation was apparently just as radical, a very large exposure being made by a lateral vaginal incision. It is generally admitted that, when the disease has advanced outside of the uterus with glandular involvement, the percentage of five-year cures is very small indeed, and that delay in the continuance of growth (I do not call it recurrence) depends largely upon the resistance of the individual. The somewhat increased mortality necessarily following tests the best judgment of the operator in deciding how radical a procedure is warranted in these advanced cases.

Many operations on the gall-bladder and ducts were seen in the various clinics. Most of these cases are operated upon somewhat later, on the average, than in this country, which undoubtedly has led to the higher percentage of cholecystectomies there than we have here. Perthes and Pyer use a modified Kocher incision, which gives a fine exposure of the ducts. The incision extends from the ensiform cartilage to the umbilicus, and from the umbilicus at a right angle as far as the costal margin if needed. The rectus muscle is divided after being sutured to its sheath in two rows lateral to the proposed incision to prevent retraction.

An interesting point in the causation of gall-stones has been worked out in Payr's clinic in Leipzig. He shows that the percentage of cholestrin in the bile of pregnant women is four times as great as in other women or in men, and, as 19 per cent of the weight of the gall-stones consists of cholestrin, he believes that this accounts for the fact that such a large percentage of the cases of gall-stones occur in women, and that the first symptoms have become manifest in the majority of them during pregnancy or shortly after.

In three instances Wilms has made an anastomosis of the hepatic duct and duodenum with a permanent rubber tube. The first case was done three years ago. He presented two of the cases at the clinic.

German surgeons have a great liking for reconstructive work, and much can be learned in a study of their bone, joint, and plastic surgery. Lexer of Jena showed a number of cases in which he had transplanted the entire knee- joint immediately removed from amutated limbs to replace ankylosed ones. A very useful degree of motion was present in the several cases shown. Payr is making resections of fixed joints to secure motion after Murphy's original plan, removing more from the femur than the head of the tibia, however, which is the reverse of the present method. He transplants the fascia lata and its fat into the joint in the same manner. In the end-results of the operation, the radiograph shows but little dif-

ference between the methods, both permitting of a near function from like changes in the different tissues.

A very common plastic operation is that of transplanting fat to fill out defects of the skull and the face, as well as the free use of transplanting the fascia lata with the fat side down in operations on the brain, especially in epilepsy, the dura over the exposed area being entirely cut away. Perthes transplants hernial sacs, removed at operation for this purpose, into ankylosed joints. They claim greatly improved results by such methods and have much less trouble from adhesions and cystoid scars than followed former operations upon the brain. Hildebrand decompresses by aspiration of a ventrical through the corpus callosum. The skull is opened with a small drill.

In three clinics we observed an artificial esophagus made of a section of small intestine. They were connected with the stomach, extending over the sternum beneath the skin and continuing on to the neck as a tube lined with skin, which was connected with the esophagus, three operations being required. Lexer's case was the only completed one, and it was interesting to see the bolus of food go sliding down through this artificial esophagus over the front of the chest. In all of the cases the stricture was non-malignant. Enderlen, in a similar case, united the esophagus with the stomach, which was drawn through the diaphragm. The patient died on the eighth day of pneumonia; the autopsy did not show any infection; healing of union was perfect.

He also reconstructed the alæ of the nose with the lower lobe of the ear, and exhibited many bone and joint reconstructions.

Perthes of Tubingen and Wilms of Heidelberg showed many cases of surgery of the lung, especially partial removal of the rib in tuberculous conditions to replace the lung at rest. The advantage claimed over the Friedreich operation by the removal of short sections of several ribs, front and back, through several incisions, was the slower shrinking of the wall of the chest. They use differential pressure in interior operations on the chest.

Bonn is the most interesting university center. Professor Garre, one of the best surgical teachers of Europe and an operator of excellent judgment, is in this university. Professor Makkas presented a patient in the clinic with exstrophy of the bladder in whom, three years before, he had devised a bladder from a cecum, which was separated from the colon after making an ileocolostomy. The ureters were connected with it, and the bladder formed was drained every three or four hours by a catheter passed through the lumen of the appendix, which had been converted into urethra by an appendicostomy. However, in the radiograph just taken, the ureters showed dilation extending to the kidney.

Goiter is a very common disease in Germany and operation of frequent occurrence. The methods of operation are similar in plan in all of the clinics,—transverse incision, double ligation, and division of all of the tissues over the thyroid gland, and very careful ligation of the arteries with some strong material. Few surgeons trust catgut for this purpose, aud use silk, linen, or silkworm gut. In Germany exophthalmic goiter is considered a surgical disease, and it was interesting to see so many cases in the various hospitals. Preliminary ligations of the arteries are made in most of the clinics when the disease is operated on in an active stage. Rehn now removes one lobe of the thymus gland, if found, with the extirpation of the thyroid. Most excellent results are obtained by operation, and the mortality is reduced to a very low percentage. The surgical treatment and the results are borne out by the work of their physiologists also.

A general knowledge of the development, function, and therapy of the various ductless glands of the body seems to have been worked out here with much less bias or theory than in other countries.

In Leipzig a most interesting visit was enjoyed with Professor Trendelenburg, a well-remembered visitor to America, now retired from active practice. Here also Professor Tillmanns showed some very interesting cases at the Children's Hospital. Many varying tuberculosis lesions were being treated with tuberculin to which was added the staphylococcus toxins. The patients showed marked improvement, claimed to be due to a more active local inflammatory reaction.

In Frankfurt-on-Main an interesting visit was made through the laboratories of Paul Ehrlich, one of the foremost men in the profession today. He is a small, active, jolly fellow, most interesting to meet and a typical scientist.

In Vienna the average attendance of American surgeons at the clinics is about 150. They maintain a continuous local society, deriving inspira-

tion from the excellent surgery of von Eiselsberg, (a student of Billroth and a clear-cut surgeon) Hochenegg, Clairmont, Zuckerkandl, and others of world-fame surgeons and clinicians of that city. The atmosphere of the clinics is quite American.

The details of anesthesia varied in the different clinics. As a rule, the operating-rooms are supplied with an apparatus which delivers to the patient oxygen, ether, and choloroform in exact proportions. Körte in Berlin was using the old A. C. E. or Billroth mixture. He claimed that ether alone presented some difficulties when used on those patients who were accustomed to their "schnops." While noting the excellence of general anesthesia as produced by the various methods (ether as a drop-method is used much in Vienna), we were impressed with the wonderful development of the various methods of local anesthesia that have been perfected in the several clinics. One could not but feel that there had been some necessity for it owing to trouble in the past with general anesthesia. The best local anesthesia resulted when twenty to thirty minutes were allowed to elapse between the injection and the operation. Abdominal operations of all kinds were made under intradural spinal anesthesia. The skull was opened and an operation on the brain was made under local anesthesia. The middle and posterior branches of the fifth nerve were injected at the base of the skull, and in some instances the ganglion has been reached with a curved needle, permitting of most extensive resections and other operations on the face and jaws. Operations on the limbs, bones, and joints were made by brachial plexus and sciatic nerve injections of novocain, the nerves being found by an insulated electric connected hypodermic needle. They use the pneumatic tourniquet of Perthes distended within a metal shield, which gives perfect control of circulation, and is somewhat similar to the apparatus used by Bunts of Cleveland.

Kümmell made a partial gastrectomy and gastroenterostomy using five per cent ether in salt solution, given intravenously in the arm. A continuous stream of ether was introduced when needed, and salt solution when anesthesia was sufficiently deep, 16 to 18 grams being used during the operation. Evaporation probably reduces the strength of this to about 3 per cent when received by the patient.

Prostatectomies and operations for hemorrhoids were made by an extradural spinal injection, each side of the sacrum and coccyx. Wilms made very rapid perineal prostatectomies, one in three minutes and another in four minutes, using a long needle and deep injections of novocain about the base of the bladder and prostate, the needle being inserted through the perineum with the finger in the rectum as a guide. A number of herniotomies were made by the Heinrich-Brown method of local anesthesia, four deep penetrations of the needle and injections of novocain beneath the aponeurosis, each two inches lateral to the ends of proposed incision, with local skin injection along the line of incision.

A case of osteomyelitis of the tibia in a fourteen-year-old boy was operated on after securing anesthesia by opening the saphenous vein in the thigh below a tourniquet and injecting it, under tension, by a syringe filled with novocain solution.

All of these methods showed to what extent an operation can be carried out successfully without the use of general anesthesia when it is contra-indicated.

German surgery can well be spoken of as a "school of surgery," and has more or less dominated the surgery of the world. The German surgeons are most efficient. While their surgery has originally developed almost entirely from the laboratory side, the clinical work today has certainly been advanced remarkably. The methods of hospital development, support, and control have created a system which is adapted to the masses in contrast to that in this country, which considers the individual. Although many of their methods are not adapted to our institutions and people, they are well worth consideration by our surgeons, as there is much to be learned from them.

PLASTER-OF-PARIS CASTS*

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There are several reasons for my offering for your consideration today a subject so trite as this:

1st. I see many a patient to whom even the suggestion of a plaster cast is disagreeable, as though the fact had been forced upon him by some previous experience that casts are an unmitigated evil.

2nd. It is my opinion that a great many medical men are not well enough acquainted with the use of this agent of the therapeutic armament.

3rd. I have many times been asked by physicians and hospital authorities regarding my materials and manner of applying plaster casts, and I have resolved to put this into writing as well as I can. The only two articles published on the subject in the Northwest are the excellent one by J. E. Moore in 1893, and another by C. A. Kelsey in 1902.

The physical properties of plaster-of-Paris, or gypsum, are of course known to all of you. A very able exposition of the chemical and physical properties of plaster-of-Paris are given by Stern, of Cleveland, and I would refer those interested, to his article. For practical purposes it is necessary to know that what is commonly sold as pure dental plaster, or pure Nova Scotia plaster, which crystalizes or "sets" in from six to ten minutes, and which is finely powdered, and of the consistency of flour, is the best for our purpose. The so-called quick setting plaster for dental work contains accelerators which unfit it for our purposes. Plaster-of-Paris, free from moisture, and kept in a metal receptacle, should retain its properties unchanged for a long time.

The materials used in constructing a plaster-of-Paris bandage are a cloth base for the bandage, such as crinoline or cheesecloth and the plaster-of-Paris; I prefer crinoline. It is important to get crinoline that is not sized with glue but with starch; it is better that this crinoline have a fairly large mesh, about forty to the square inch. It comes in twelve-yard bolts, one yard wide, and as six yards is a suitable length for a plaster-of-Paris bandage, the bolt can be divided in two, and the bandages made in any width desirable. Regarding width, I rarely use a bandage less than three inches wide; four- and five-inch bandages are the rule in my work; they are not difficult to handle, materially shorten the time of application of the cast, and give stronger, more homogenous, better looking results. Whenever large casts are to be applied I even use a six-inch and seven-inch bandage.

Plaster-of-Paris should be of a fine powder-like consistency, without grittiness, or lumps, should be perfectly dry, and should not contain an accelerator. The bandage can be made either by hand or by machinery, elaborate machines for hospital use being devised. However, for my purposes, the hand-made bandage will always be the one which I will use. Plaster-of-Paris is spread upon a table, preferably a kitchen table; the rolled-up crinoline bandage, from which the starch is not washed out, is partially unrolled; plaster is rubbed into the meshes of the crinoline with one hand, while the other hand rolls the bandage. Care should be taken to leave a hole about the size of the small finger in the center of this bandage so that the bandage, when it is immersed in water, will soak not only from the outside but also from the inside. It is understood that the plaster should be evenly applied throughout the length of the bandage. When using large-meshed crinoline it is perhaps a little more difficult to apply the plaster evenly, but a little practice on the part of the one making the bandage will soon overcome this difficulty. After the bandage is rolled it is wrapped in two or three thicknesses of ordinary paper napkin, and the whole held together by a slender rubber binder as first pointed out by Freiberg. This paper covering, while a very simple device, is really a great aid in the technic of applying a cast, as it not only gives a cleaner method for handling the bandage but prevents waste of plaster after the bandage is immersed in the water; the method being to put the covered plaster bandage directly into the water.

The plaster bandages, when made, are then placed in a metal container (an old bread box does very well), and if kept dry ought to last indefinitely. A "home-made" bandage is always to be preferred to the commercial variety, not only because it is much more economical, but the commercial bandage has usually been on a drug shelf from six months to three years and —the chief objection—almost all commercial

*Read before the Crow River Valley Medical Society, September 25, 1912.

bandages contain an accelerator, usually potassium sulphate, in too great a quantity, which not only hastens the time of setting unreasonably, but also gives a weak, mushy cast.

Accelerators.—By the addition of certain salts to the water in which the plaster bandage is immersed, the time of setting can be hastened considerably. Examples of such are common salt, hyposulphite of soda, borax, alum, zinc-sulphate, and potassium-sulphate. Another accelerator is plaster-of-Paris which has "set" and then has been finely powdered. The most commonly used accelerator is common salt and answers well for all purposes. It is often necessary to use an accelerator when it is desired to decrease the time of setting. Hot water is a good accelerator and often is sufficient. It may be said that the more accelerator used the less will be the strength of the resulting cast. Accelerators are used when the patient must be in an uncomfortable position during application of a cast; when the patient is under an anesthetic; when a model for a subsequent brace is being made (great strength or durability not being necessary here); or when it would tire the operator unnecessarily, as for instance in waiting for the plaster to harden while holding a club foot in corrected position.

Application of cast.—In applying a cast it must always be remembered that, although it is very nice to have a cast that looks good externally, the inside of the cast is much more important than the outside. Care should be taken that the skin is free from dirt and other matters, and that there exists no parasitic skin disease, such as pediculosis, for instance. The use of different powders, such as talcum, etc., is not wise as they may cause irritation later. Should there be open wounds, incision wounds, or sinuses, these must be dressed according to well-known surgical principles. If such a dressing is applied, as little adhesive plaster as possible should be used in retaining it, and the adhesive plaster should never under any circumstances entirely encircle the limb. Stockinette is then placed over the entire area which is to be covered by the cast, and the stockinette is allowed to extend liberally at each end of the cast. If it is impossible to obtain stockinette, tight-fitting underwear may be used to advantage, all buttons having been removed, and needle and thread having been used where the buttons were. Over this stockinette there is then placed a certain amount of padding. For general purposes I prefer ordinary sheet wadding; it is inexpensive and easy to apply, and is to be preferred to ordinary cotton although, in a pinch, this can be used. For those frequently applying plaster casts it would be well to have a small amount of felt on hand, as felt is frequently a convenient adjunct for padding. It is especially necessary to carefully pad projecting bony prominences, or any place where bone is subcutaneous. This padding is then drawn tight by the application of a roller bandage. I prefer muslin bandages for this purpose. The bandage should be applied with a certain amount of tension, and it is a mistake to reverse the bandage as the reverses frequently pull taut and cause constrictions. After the limb has been thus padded and bandaged it should retain the general shapeliness and outline of the region covered. It should be so taut as to be almost a supporting apparatus. The region is now properly prepared for the application of the plaster bandages.

Plaster-of-Paris bandages.—The plaster-of-Paris bandages are taken from their container and placed end on, covering and all, into warm water to which salt may have been added if hastening is desired. The bandage should be allowed to remain until all bubbling ceases, which means that it is well soaked through; it is then gently lifted out of the water, grasped at each end, and all superfluous fluid removed. If the bandage has been properly soaked it is almost impossible to remove too much water. Small shreds of wet paper are easily and quickly removed and the bandages are then applied over the desired region without tension and without reversing. If a change of direction is desired by the operator, this can be very easily effected by slightly duplicating a fold of the bandage on itself and starting out in the direction desired. While the plaster bandages are thus being applied, quickly and without haste, it is well to have an assistant keep on rubbing, layer after layer, so that the resulting cast will be homogeneous, firm, and strong. Lorenz says: "Rubbing is the soul of the plaster cast." The cast will begin to harden in from two and one-half to ten minutes, according to the amount of accelerator used. When it has hardened enough to become fairly rigid one should immediately commence to trim the edges, rounding them off carefully, and to cut windows over wounds or sinuses. A margin of wadding about one inch wide is left to further protect the edges. For the next twenty-four hours the patient should be instructed to keep quiet, and expose the cast as much

as possible to the air and warmth so that it may thoroughly dry out. Then the stockinette, which, as you will remember, has been placed directly on the skin, is reflected over the edges of the cast and brought together, pieces being set in where necessary, so that the entire cast is covered with stockinette.

I have neglected until now to speak of the "scratcher" which is a great relief to those who must wear casts for a long period of time. The scratcher is nothing but an ordinary bandage placed on the skin under the stockinette and allowed to extend well beyond the edges of the cast. Two or three scratchers may be used for the same cast. The purpose of the scratcher is to enable the friend or nurse to rub the scratcher up and down and reach places under the cast which the patient's fingers never could reach. The scratcher is a great relief to those obliged to wear casts, and I would heartily recommend its use wherever possible. These scratchers not only serve for comfort but they also keep the skin clean and inform us of any possible pressure-sore at the outset, as the rubbing of a piece of cloth over an inflamed area will not only cause discomfort to the patient, but the cloth will come out soiled by a serous or purulent discharge should a beginning pressure-sore be present. Patients are instructed to change these scratchers frequently by sewing a new piece of bandage, muslin preferred, to the scratcher which is under the cast, pulling out the old scratcher and pulling in the new one. During the heat of the summer I find it very practical to have the patients pull in a scratcher soaked in 95 per cent. alcohol; this is not only cooling, but cleansing. I have had patients who have worn the same casts for six or seven months, who on removal of the cast presented a pure, sweet, clean skin underneath; this being due only to the liberal use of the scratcher. It is not infrequent for me to get a patient who has been treated elsewhere and who on account of this simple device becomes my friend for life.

Housewives and hospital nurses appreciate a surgeon who does not get plaster-of-Paris on the floors, walls, ceilings, and himself, during the application of a cast. It is almost as easy to be clean as it is to be slovenly, and cleanliness creates a vastly better opinion of us among the watchers. Whenever possible I have a nurse ready with a mop to clean up the smallest bit of plaster should it fall on the floor. Stepping into the plaster on the floors and tracking it through halls and distant rooms is only one of the disagreeable features of untidiness in the use of plaster-of-Paris. The operator's and assistant's hands can easily be cleaned of plaster by removing the plaster before it has set. Washing the hands in a copious amount of running water will remove all of the plaster and will not clog the plumbing as it would if we waited until the plaster has become set and flaky. The use of sugar or salt to facilitate the removal of plaster from the hands is to my mind an agreeable superstition.

Reinforcement. It is frequently well to reinforce the cast in certain parts by imbedding between the layers of plaster bandage certain materials such as thin strips of board, metal, or wire webbing; this not only serves to make the cast stronger in certain places, but often allows us to have a lighter cast as a result. Sometimes, however, it is necessary to strengthen a cast in certain places, as, for instance, on the sole of the foot, by duplicating the plaster on itself until the required thickness is attained. Another method of getting a stronger, and therefore lighter, cast is to mix the plaster with from five to fifteen per cent. of cement, which not only strengthens the cast, but also makes it lighter; however, this procedure lengthens the setting time of the cast.

While the correct application of a cast is fairly easy, any violation of the simple rules of surgical common sense is liable to be followed by untoward results. Decubitus or pressure necrosis is the worst to be feared because the most insidious. The chief causes for decubitus are, 1, too little protection to bony prominences or other areas of subcutaneous bone; 2, inexperienced assistants evince a great desire to leave their finger imprint in the cast while it is hardening and thereby make pressure on the corresponding point under the cast; 3, a too tightly applied gauze or muslin bandage will cause a prominent crease gradually to dig its way into the skin; 4, I have seen pressure necrosis result from prominent seams in the underwear used in place of stockinette. It must not be forgotten that a pressure-sore is as a rule painless in onset and it can extend down to the bone without giving a symptom or causing any discomfort whatever to the patient. It will be appreciated what an aid the use of the scratcher, as above mentioned, would be in a case of this nature.

Interference with circulation must, of course, always be watched for and the tips of fingers and

toes must always be left exposed so that we can judge the condition of the circulation. The patient should always be seen by the operator within twenty-four hours after a cast has been applied, and if there is interference with circulation, whether it be slight cyanosis or complete obstruction to arterial flow, the constricting cause must be immediately removed by dividing the cast and all constricting bands.

Atrophy of muscle is the third disagreeable effect to be mentioned regarding a cast; this is frequently unavoidable, but, as pointed out by Huebscher, it can sometimes be avoided by allowing the patient to voluntarily contract the muscles under the cast without in the least moving the affected joints; a trick which is easily learned by patients of even average intelligence. Murphy, of Chicago, is very much opposed to the circular plaster cast, but if the cast is applied carefully as outlined above, many of his objections have been removed.

Removal of cast.—Many devices have been invented to facilitate the removal of a plaster cast. The use of a heavy, short-bladed knife is still perhaps the most common in vogue. Many operators, just before applying a cast, put a gigli saw under the layers of plaster and when they are ready to remove the cast, attach the handles and saw the cast from within outward. I prefer to use the Stillé plaster shears, which seems to me to be the most rapid and ideal method for removing a cast. The writer does not see much value in attempting to soften the line of incision of a cast with water, acetic acid, or hydrogen peroxide.

Many forms of apparatus, operating tables, etc., have been devised to aid in keeping the patient in a comfortable and rigid position while the cast is being applied. Some of these are extremely simple, some very complicated. As a rule it may be said that the simpler the device the better, and again it may be said the less apparatus the better. However, the use of one of the hip rests is a great aid in applying the spica to the hip. Sayre's suspension apparatus is almost indispensable in the application of plaster-of-Paris in ordinary back cases. A little ingenuity on the part of the physician, together with the services of an intelligent blacksmith, will often result in a piece of apparatus just as good as the most expensive device.

Plaster model.—Before concluding I should like to describe the method I employ for making a plaster-of-Paris model for the use of a bracemaker. The skin, if hairy, is smeared with vaseline. There is placed parallel to the long axis of the limb, a piece of heavy picture-frame wire. The plaster-of-Paris bandages are soaked in a strong salt solution, in order to hasten setting, then applied smoothly and quickly over the area desired. While the thickness varies with the size of the model, three or four layers evenly applied will be thick enough as a rule. During the hardening process the limb is held in the corrected position desired, and as soon as it is hard the cast is cut open along the wire for its entire length. It is well to mark the cast with cross lines so that when the edges are approximated after removal of the model, the edges of the cast will be brought together as they were before the cast was removed, otherwise slight warping would ensue.

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MEDICAL EDUCATION*

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It is not the purpose of this short paper to trace historically the development of the science of medicine, nor will any attempt be made to point out any possible connection which may have existed between the conditions of the medical profession at any particular period and the kind of medical education prevalent at that time. It is likewise beyond the scope of this discussion to follow out step by step the history of medical education throughout the civilized world. But for purposes of orientation and of securing the proper point of view, attention may be called to a few salient points connected with medical education outside of our own country.

If we direct our attention to Europe, and the parts of Asia and Africa bordering on the Mediterranean, it seems to be well established that training in medicine has been carried on largely, if not entirely, in departments or schools which have been integral parts of a university. Even if we go back as far as 300 B. C., when the great University of Alexandria flourished, we find there a vigorous medical department. And that it was early recognized that only the trained mind could successfully grapple with the facts and problems of medicine, becomes at once apparent if we study the universities of medieval Europe. In the middle of the 13th century A. D. the young man who wished to prepare himself for the practice of medicine was first required to spend three years in a university, devoting himself to cultural and disciplinary courses, after which he studied medicine four years. Then he had to practice with a physician one year before he was allowed to practice on his own responsibility; and if he aspired to become a surgeon he must spend an extra year in the study of anatomy.

Along the lines drawn thus early, medical education has been developed throughout all of Europe down to the present time, so that today, no matter how low the general intelligence of the people or how large the percentage of illiteracy may be, we find that the standards of medical education are high. Before entrance upon the medical studies proper, which usually require about five years, the student must have completed elementary and secondary courses of study amounting to twelve years, usually extending from the sixth to the eighteenth year of age, and, in addition, one or two years of university work, largely devoted to science. In several of those countries requiring two years of university work before the student can devote himself wholly to medical studies, some of the courses in medicine are begun during the first two years at the university in connection with the required science work.

The student of medical education in the New World usually experiences somewhat of a surprise. Mexico and the South American republics have departed but little from the forms and standards of Spain. From the establishment of the medical school at the University of Mexico, in 1578, until the present, all of these countries have had no institutions for the training of physicians, except the medical departments of their universities, the length of whose preliminary training, as well as of the medical course, has kept pace with what is ordinarily found in Europe.

From this survey of medical education throughout the civilized countries of the Occident, outside of our own, it appears that the training of the physician has enjoyed a peculiar distinction. It has always been on a high plane, with ample prerequisites in the form of preliminary education; and the course itself has always been broad and comprehensive.

In view of these facts, it is certainly very difficult to conceive of an adequate and satisfactory reason why medical education in this country should have degenerated to such an extent as to have become at one time wellnigh disreputable. All the immigrants who settled here carried with them correct traditions of the medical profession, and all were accustomed to rational and safe standards of medical training. And, what is more, they began right. Their first schools of medicine were parts of universities, or colleges having arts and science faculties, and their courses of study and entrance requirements compared well with those of the mother countries at that time. How a people with traditions old enough to be bred into their bones, with sufficient intelligence and genius in people and leaders to make them the teachers of the world in the science of government, and with energy, enterprise, and ingenuity enough to transform the wilderness of a continent into blossoming gardens—how such a people could lose their bearings and forget their own most precious inter-

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ests to such an extent as to permit the training of their physicians, into whose hands they constantly entrusted their lives, to become often the next thing to a farce, is a problem that is incomprehensible, and a fact which causes us, their heirs, to bow our heads in deepest humiliation. It is not sufficient to offer as an explanation of this somewhat exceptional phenomenon that the conditions of pioneer life made such a state of affairs inevitable. East of the Alleghanies, the pioneer conditions were passed before the opening of the nineteenth century, and stable conditions had been reached in the whole territory east of the Mississippi River before the opening of the Civil War. And, in addition to this, we may recall that a race whom we are wont to consider decidedly inferior to our own established itself during the same time in an area even more extensive than our own country, and that at no time did these people depart from the high ideals and standards of medicine found in their fatherland.

I shall not impose upon your time by reciting to you the well-known story of that flood of mercenary proprietary medical schools which swept over the country during the first three quarters of the 19th century, wiping out or changing the character of the few creditable medical schools formerly established in connection with colleges or universities. Suffice it to say that not more than thirty years ago, in all the commonwealths of our republic it was possible for the youth to leave the farm, the forge, or the foundry, and without any preliminary education enter a medical college from which he was graduated after having listened twice to the same five or six months' course of medical lectures.

The completion of such a course entitled him to the time-honored degree of Doctor of Medicine, and this placed in his hands, for every one of his remaining days, the issues of life and death for some of his fellow men. The fact that, in spite of this system of medical education, we had in this country at that time a good proportion of creditable practitioners, and a considerable number of men who would have been a pride to the profession of any land, was due to the inherent qualities of these men themselves, and to the fact that they entered the medical colleges, such as they were, with better preparation than the minimum and there came into contact with some of the rare and exceptional teachers of those times, who were filled with enthusiasm for their subjects and were themselves the very embodiment of the highest professional ideals.

It is a very interesting coincidence that medical education in this country should have reached the end of its lowest ebb at the time at which medicine, throughout the world, was emerging from the realms of empiricism and was being placed upon a solid scientific foundation. If it had been the consensus of opinion throughout the civilized world outside of our own country that a grasp of the field of empiric medicine could not be acquired except by means of an extended medical course based upon thorough preliminary training, how much more necessary did it now become to have adequate courses properly planned for the mastery of the *science* of medicine. So, since the tide turned in our medical education thirty years ago, we have had, going on concurrently, two processes; on the one hand, a complete transformation of medical education, and, on the other, the last steps in the complete liberation of medicine from the fetters of authority and empiricism. In common with what has taken place in other countries, our medical education has been changed largely in nature and character to correspond with the growth and changes which have taken place in medicine itself. But, in addition to this, heroic efforts have been made to place our medical training on a level with that of other countries in regard both to the extent and thoroughness of the medical course itself and the amount and excellence of the preliminary training required for matriculation. Naturally, at the beginning of the return tide the movement was slow. Accompanied by certain definite but steadily increasing entrance requirements, there was, first, a change of the ungraded two-year medical course to a graded one, and then an extension of the course to three years, followed by the gradual lengthening of each school year from five or six months to seven, eight, and nine months. Here there was a pause, during which the preliminary training, in the better schools at least, was being fixed, the minimum settling at a four-years high school course following an elementary course of eight years. Then came the four-year medical course. Many thought that this signalized the end of the forward movement. But the advocates of higher standards are still pushing on, determined not to rest until the standards of medical education throughout the length and breadth of our country shall be fully equal in every respect to those of the other civilized countries of the world. And that they are going to succeed seems entirely certain; for we find that, during the school year that is now about to close, one-third of all the medical colleges in the country required for entrance one or more years of college arts and

science work in addition to a four-year high school course, and one-fourth of them required two or more years of such college work. And in all cases, whether one or two years are required, the college work must include courses in physics, chemistry, and biology.

The change in the character of the instruction demanded by modern medicine, together with the higher entrance requirements prescribed by statutes and examining boards, have sounded the death knell of the proprietary colleges, whose only reason for existence was the annual apportionment of dividends to deans and faculty members. By the forced suspension of many, and the merging of others by twos and threes, the number of medical colleges in the United States has been reduced during the last three years from 161 to 120, or fully 25 per cent. It would thus seem that we are rapidly getting away from the anomalous position which we occupied three years ago when we had nearly one-half of all the medical schools in the world.

An examination of the list of medical colleges which are fully up to standard shows that they are largely state or endowed university schools, or schools with close university affiliations, thus indicating that in this respect also we are getting back onto the ground which the experience of the world has shown to be the safest and sanest.

And now, we may ask, what is this modern medicine? why does it require of its students, not only the keen intellect resulting from prolonged preparatory courses, but also a knowledge of the principles of physics, chemistry, and biology? why does it require for its mastery such long, carefully graded courses, the backbone of which consists of accurate, painstaking work in laboratories equipped with costly apparatus?

In its ultimate analysis, modern medicine may be said to consist of the principles of physics, chemistry, and biology grouped and applied to the solution of the problems of disease. If the principles of these sciences are the units, as it were, out of which we construct the composite science of medicine, it follows that they ought to be known thoroughly; and they can be mastered most readily when they are studied as they occur separately and in their simplest manifestations, rather than by attempting to unravel them from their complex groupings. We are therefore joining in the general consensus of opinion of the civilized countries of the world that these sciences are necessary prerequisites for a successful study of medicine. There are several reasons why the various medical subjects must be taught very largely by means of laboratory work. In the first place there is no other way by which such true, accurate, and vivid knowledge can be obtained. The plan of mastering even such relatively simple sciences as physics and chemistry without the aid of the laboratory, has long since been abandoned. The futility, therefore, of acquiring the subject matter of such highly complex sciences as those found in the medical curriculum without resorting to laboratory work, is at once apparent. Equally valuable is the laboratory work from another point of view. It is only a truism to say that accuracy in observation is an absolute necessity in a successful physician. Since we are all agreed that the power of observation can be very materially improved by cultivation we are ready to recognize that, however valuable the preliminary course in biology may be for this purpose, it is, nevertheless, inadequate and ought to be supplemented. Before an audience like this it is hardly necessary to say that in all the realms of science there is no better means of training the observational powers than by well-planned courses in anatomy, histology, embryology, bacteriology, and pathology.

But the physician of to-day must not only be able to observe accurately. In addition to this, he must be an expert in controlling and varying the conditions surrounding his cases, and be able to estimate correctly the effect of each factor in the changes which he has made. In other words, he must be able to carry on a rational scientific experiment; but he cannot do this without proper training. The foundations of such a training he gets in the laboratories of chemistry and physics, the sciences which very properly have been called the experimental. However, it will be granted without argument that in order to give the physician the skill in scientific experimentation which he needs, it is necessary to extend the training begun in the physical and chemical laboratories by experimental work in lines where the problems presented are more nearly like those which he will be called upon to solve in his life-work. For this purpose nothing can be found which more admirably meets the requirements than the laboratory courses which are now being required in physiology, pharmacology and pathology.

Again, modern medicine is imbued with a healthy skepticism. It takes nothing for granted. Worship of authority is a thing of the past. What it accepts as facts has been subjected to the severest tests. The medical student must, therefore, from the very beginning, have developed in him the scientific attitude or frame of mind. He must early learn to distinguish be-

tween facts, on the one side, and probabilities and possibilities, on the other, so that when he comes to practice his profession he may act with the proper assurance and confidence in the one case and with the necessary care and caution in the other. And we submit that only in the laboratory, where the student comes into direct contact with facts themselves, can such results be obtained.

And while all these things are going on, the student is mastering the methods and the technic characteristic of modern medicine, whereby, in the practice of his profession, the capacities of his sense-organs are multiplied a thousandfold, so that he is enabled to replace conjecture by a knowledge that will permit a definite solution of problems presented.

However, if we are to obtain such results as those I have mentioned, it is clear that the courses must be planned and carried out by men who are fully conscious of the objects and purposes to be attained and with ability enough to realize them. This means that the basic scientific subjects of the first two years of the medical curriculum should be in charge of men on full salary without divided interests, and selected on the basis of scholarship, teaching ability, and capacity for research. It is a pleasure to record that this goal has already been reached by the medical schools which are up to standard.

THE NEW PUBLIC HEALTH—ELEVENTH AND CONCLUDING PAPER

THE CONCLUSION OF THE WHOLE MATTER

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LONDON, ONTARIO, CANADA

If previous articles have succeeded in the very earnest attempt they made to show what the new public health principles are and how they have become established, the one momentous matter in public health still left unsolved is this—why, why, why are not these principles observed? If we know how to do it, why is it not done?

First, because the general public does *not* know. They still believe religiously the theories that were beginning to be discarded in scientific circles twenty years ago. To any one who has discussed these subjects before lay audiences it becomes most evident that people the most refined and educated still believe, concerning public health, almost the same things that the most ignorant hold. So long as these beliefs control public opinion, so long will public health lag far behind other advances. Four of the most common fallacies the writer's experience of public discussion has elicited are illustrated here, and the reader may easily test his own state of knowledge by asking himself what answers he would give to the questions here presented:

1. If the disease germs are not evolved afresh from dirt or decomposition, but are descendants of their forefathers, where did the first disease germ come from?

We do not know. Where did the first wheat come from? Or the first horse? We know that we can get no wheat *now*, except from wheat, nor horses except from horses. These germs are plants or animals, exactly as wheat or horses are. That they are tiny no more changes this law of descent than does the enormous size of a whale or of a redwood tree. "All life from life" holds true in nature through the whole scale, from germ to human beings. Besides, under the microscope, we *see* the germs "descending" from their forefathers.

2. If dirt does not breed disease, then why are dirty people more subject to disease?

Dirty people are no more subject to disease than clean. Infection, if it reaches either, may yield disease in either; if it reaches neither, neither will suffer. If an infectious disease enters a household, the dirtiest people will not spread it, despite their dirty habits, *if they avoid the one specific "dirt"* (the discharges of the patient) which alone is harmful; the cleanest people will not fail to catch it if, in their general cleanliness, they neglect that same specific "dirt." True, dirt and carelessness and disorder offer some indication whether or not the people who show these characteristics would have the sense, or take the trouble, to avoid the one dangerous "dirt," should it appear. On the other hand, cleanliness, thrift, and system indicate characters likely to handle infectious "dirt" with the same care they show in other matters. But the dirtiest people who make the proper efforts to avoid

infection can and do many times escape, remaining as dirty as they please in other ways. The cleanest people who neglect or do not know the methods can and do suffer.

3. If you tell people "dirt" does not breed disease, you are praising dirt — upsetting all the careful uplift all the best people have attempted for many, many years.

Suppose a *water*-pipe is leaking in your house, flooding the floors and damaging everything. Suppose that when the plumber is hurried to the rescue, he tests the *gas*-pipes, finds a leak, stops it, and tells you all is well. What would you say? True, the *gas* leaked; it was right to stop it: but the *water* goes flowing on! Suppose to your objections he replies: "But think how bad the effect would be on our campaign against gas-leaks, if we failed to urge that gas-leaks must be stopped, whether they stop the water-leaks or not. If I admitted that gas-leaks have no connection with the water-leaks, you would let the gas flow on. I *must* make you believe the water-leak depends on the gas-leak, else you won't fix the gas-leak." Stopping gas-leaks cannot help water-leaks nor *vice versa*. Reducing disease will not make people "clean," nor will making people "clean" reduce disease; only the one "cleanliness" of avoiding infected discharges will gain this end.

4. Why do you talk so much about disease? Teach healthy living, keep the body strong, well clothed, and well fed, and you need not fear disease, especially infectious disease, at all.

This is a fallacy so widespread that even physicians teach it, in good faith, without considering that they themselves would never let their own children, never mind how healthy, run with a measles case, or mumps, or scarlet fever, unless their children had had the disease before. If the teaching is not good enough for practical application to physicians' children, it is not good enough for public health.

You see, everyone knows that children who have had measles very seldom take it a second time, and this without regard to whether they are robust or sickly, healthy or weak. Everyone knows, too, that children, healthy or sickly, who have not yet had measles, almost invariably catch it if they are exposed. Practically, the same is true of scarlet fever, mumps, whooping cough, smallpox, chickenpox, etc. It is not so true of tuberculosis, diphtheria, or typhoid, since those who have had diphtheria or typhoid or tuberculosis may get it again; although again without regard to whether they are healthy or sickly.

In measles and the other diseases like it, persons exposed who do not contract the disease, escape, not from good health, but just because they have within their bodies a certain antidote to the particular poison of that particular disease. Anyone can prove this to himself, if he will think a moment. If general good health were a protection against all these diseases, a child who could not catch measles, *because protected by his general good health*, could not catch scarlet fever, either, for the same general health would save him from them all. But everyone knows that the child who cannot catch measles (because he has had it) must nevertheless be guarded from scarlet fever, unless he has had that too. In brief, an attack of these diseases gives, in most persons, an immunity; that is, an antidote is formed, which then protects them from having it again. But there is a *different antidote* for each disease. Having had measles once is excellent protection against measles, but it is no protection at all against scarlet fever or mumps or any other.

In diphtheria an antidote is formed, but often disappears again, and therefore this disease may be suffered more than once. In typhoid also an antidote is formed lasting a year or two. We know and are learning more of this antidote against typhoid. We do not know yet much about that which perhaps protects against tuberculosis.

Now, no one dreams that the antidote for measles can be developed by diet, exercise, or clothing; by fresh air, drugs, or anything in fact, except by suffering an attack from the measles germ. Nor can anyone seriously believe that the antidotes for typhoid, or chickenpox, etc. (except that in smallpox vaccination takes the place of an attack of smallpox) can be developed except by equivalent means. If "good health" will not protect against any of these diseases, taken *one by one*, how can "good health" protect against *all* of them taken together?

So we might deal with fallacy after fallacy, all based, however, on two.

The first of these is that infectious diseases come from "general bad surroundings." The truth is they come solely from certain germs growing in the body, and practically the only sort of "bad surroundings" which cause infections is association with one of these infected bodies or with its discharges.

The second great basic fallacy is this, that "general good health" protects against infection. The truth is, that the only true protections

against germs we know are, first and best, to keep them out of the body; and, second, to have within the body the *special* antidote for each particular germ. We vaccinate against smallpox, but that does not save us from typhoid fever. We vaccinate against typhoid fever, but that does not save us from smallpox. If we could vaccinate against every disease (as perhaps some day we shall be able to) we would be safe, despite the germs, at least while the protection lasted, and after that we could vaccinate again.

But how much better to avoid the germs which means avoiding the persons in whom they are; and then we would never need any sort of vaccination!

Surely, the thing to do for one's own sake, and still more for the sake of our associates, is to find the infected persons, or animals, that alone can cause disease in the true sense, and keep them so protected while the danger lasts that they will do no harm. Then, when their stock of germs is dead and done with, remove all the restrictions.

You will say that that is only old-fashioned quarantine. It is, in principle, but modern practice changes it so completely that, practically speaking, new-fashioned quarantine differs from old as much as motor cars differ from camels. In the first place, old-fashioned quarantine did not pick out all *dangerous persons*, but took the sick who form but *part* of the infected, and also took the well who were found with the sick, including thus some who were not infected, and kept all these practically in prison, in their homes, or ships, or wherever else they were staying. Thus, not alone were many infected persons overlooked and many uninfected persons wrongly held, but also the disease spread oftentimes from those infected who were in the net to the uninfected who were kept in with them, so that old-fashioned quarantine while it protected the community but partially, meant often poverty, disease, and death to those caught in its toils. No wonder the very name of quarantine makes many people shudder.

New-fashioned quarantine is not a blanket method, blunderingly catching in its blindfold grip both sick and well, the harmless and the harmful, indiscriminately. New-fashioned quarantine requires definite detailed knowledge applied with care and patience, not mere force.

Now, everyone wishes infectious persons handled so that infection ceases. Even the infectious do not wish to spread their own infection. The thing that chafes and riles the average person is not restriction but unjust restriction; either restriction of non-dangerous persons, or restriction of some of the dangerous only while others just as dangerous go free.

No mother minds the exclusion of her infectious child from public school, if her neighbor's infectious child is excluded also. Every physician would report his cases if every other physician did so too.

Here then is the solution, based on human nature, on common sense, and on the most scientific knowledge. Find, through the methods of epidemiology, of the laboratory, and of the vital statistician, skilfully combined by experts, these dangerous persons, whether sick or well—these only dangerous persons, those who carry on them or in them, germs of infectious diseases. Set all others free, but keep these persons, not in old-fashioned quarantine, but under such control that their discharges will not pass to others; and do not measure the length of that control by fixed time limits, blind and unjust as quarantine itself, but measure it wholly by the length of time the germs remain in the body. The moment that the germs have left that person, he is no longer harmful and he should be freed.

To do this properly means intimate attention and supervision of infectious persons by men who know their business and do nothing else. If one such man to every 20,000 persons began, tomorrow, everywhere, his work, infectious diseases in ten years, would have vanished and become mere history.

SUMMARY.

This, then, is the conclusion. The old ideas have passed; the new are no longer theories but facts; the methods they require are not untried; they have been practiced for years in Minnesota. The details are worked out, the field is ready, the scope and cost are known. All that remains is to apply the methods developed in this state to all infections, thus wiping them all out, once and for all. The way is clear, what remains is to follow it; the method is known, what remains is to carry it out; the thing we, as a race have hoped and desired and prayed for, for centuries past, can be done; all that remains is to do it.

Each generation of Minnesotans pays now for infectious disease two hundred million dollars and *has the diseases, too!* Why not pay one-tenth this sum and rid ourselves of all of them forever?

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MARCH 1, 1913

THE OVERWORKED HOSPITAL SUPERINTENDENT

Very few people realize the weight of responsibility imposed upon the man who superintends a public institution. Positions of this kind are, to the public mind, looked upon as easy work, with good pay and a good living. If the history of men who had devoted their lives to the management of state institutions was carefully read no thinking man would view a situation of this kind lightly. The man who goes to a new place where buildings are in process of construction assumes obligations that call for constant oversight. He must be in touch with architects, contractors and a variety of special workers that need daily supervision and consultation.

In the majority of instances and particularly when a state building is projected there are tedious and needless delays that could be avoided if there was a head for the entire establishment. Usually, however, when a state building is undergoing construction there are as many heads as there are contractors.

The state is provided with a board of control and architects and engineers are employed by this body. Several buildings are growing in various parts of the state, and in other institutions there are repairs that demand attention. The superintendent of each building insists upon his rights and in the rush of things every institution is more or less neglected. Contractors are behind and indifferent in their efforts largely because it is a state institution and can wait the pleasure of the constructor. No system can prevail under a multiple-headed office and the superintendent must fight his own way through the maze of inefficiency. The result is the breaking down of the man who is chosen for the completed institution. The work is not great perhaps, but the worry and anxiety is overwhelming and none but those possessed of a philosophic or phlegmatic temperament can endure the strain. Such men may make good builders, but they never become good institution men; they are executive in their manner, but unable to grasp and continue to exercise a scientific spirit over those who are to populate the institution. The tendency of the times is for centralization in building; that is, to let contracts to a firm who can break the ground and finally deliver the completed building fully equipped and ready for occupancy. If our state institutions could be built in this way the whole service would be infinitely better.

The man who continues in the superintendency for many years arrives at one of two points in his life road, a machine man or one who is wrecked in health and ambition. The majority of men who go into a work of this sort do it for the love of the work and their interest in their special line of study. If, after a few years of service—not more than four or five years—they find themselves growing rusty, they will wisely change into another occupation, but if they feel unfitted for anything else they inevitably fall into a routine from which they cannot break away.

As a rule, men of ability who devote themselves to the services of the state are poorly paid and if they reach a high plane it is only through close and constant application in spite of the daily worries and petty annoyances. A break in health is almost certain and their continuance in office is dependent upon the attitude of their superior officers. Even the men above them must contend with the same breaking experiences. The writer has in mind a few members of our State Board of Control who have broken under the strain of work that frets and annoys, and particularly when the tenure of office is political. The writer has also in mind the work of Dr. H. A. Tomlinson, who gave his life to the state institution at St. Peter which has gained such prominence. Difficulties had to be surmounted.

haggling and opposition that were nerve-racking, and worries and anxieties to be overcome in order that the dependents of the state might be cared for. After many years of service at the St. Peter State Hospital for the Insane he was chosen superintendent for the new State Farm for Inebriates. Here were new problems, endless delays and unheard-of waits for the completion of new buildings. The institution was opened for the reception of patients before the contractors were out of the building and then the break came in the form of an apoplexy and thus interrupted his long service.

This is only an example that has been repeated time and again in the life and end of the institution man. In a way the service is appreciated by a few, but the majority look upon such an occurrence with casual interest and then forget it.

Every state institution can record a like or a lesser calamity. The money recompense is wholly inadequate. No man in the state can command more than twenty-seven or twenty-eight hundred dollars a year with house rent—a total income of not more than four thousand dollars a year. Some other means should be devised to attract men to city and state institutions. They should be given living salaries, or at least be given an income comparable with the successful physician or business man outside of institution life.

It is about time that some tribute be paid to the state's faithful superintendents for the long, hard and trying service that saps and snaps their vitality.

MOVING PICTURES IN MEDICAL EDUCATION

The day is not far distant when much of the instruction in medical schools will be given by cinematograph. It will take the place of didactic lectures on hygiene and sanitation and give a better idea of the methods by which disease is spread than can be given by any lecturer. Dirty streets, back yards, barns and accumulated filth, disease developing pools, the growth of insect life and the manner in which germs are carried can be faithfully and accurately shown on screens. It has already shown the entire course of an epileptic seizure, the gait of the ataxic and hemiplegic, the efforts of victims of atrophy and dystrophy to rise from a lying to an erect posture, the convulsive tics, the attitudes and facial expressions of the insane, surgical operations in their various steps from the first incision to the final completion of the operation by stitches and dressings.

The radio-cinematograph shows intensified fluoroscopic images of the skeleton and organs of living animals. The whole skeleton of the animal is shown in every detail of movement. Every joint movement is clear and distinct. The organs of respiration, the beating of the heart, normal and abnormal, the movements of the diaphragm, liver and intestines.

This form of radiography is secured with a photographic rapidity of 14 images per second. The cinematic camera takes in the field of ultramiscroscopy and shows images in the dark fields. On the screen the human blood cells are magnified so that they measure 15.3 cm. diameter, equal to amplification of over 20,000 to 30,000 diameters, and the Brownian movements, the elements of the blood in motion and the different parasites infesting it, are seen.

Prof. Matas, of New Orleans, according to an editorial in the Medical Review of Reviews, has shown marvelous pictures of the blood of man and animals. "Coagulation, hemokonia or fat bodies of Müller; the ameboid movements of the leukocytes; phagocytosis, as this occurs in anthrax; the flora and fauna of the intestines of the mouse; the Trypanosoma Lewisi in the blood of the sewer rat; the Trypanosoma Brucei as transmitted by the tsetse fly; the spirilla of relapsing fever; the spirocheta of Vincent; the Treponema pallida as it lives in syphilitic lesions; the agglutination of the bacillus of Eberth as seen in the Widal test, and, finally, the demonstration of the Erlich-Hata '606' as it affects the parasites in an experimental lesion in the cornea of a rabbit."

To see all of these wonders of movements in and of the blood and to follow the effects of parasites constructive or destructive is one of the marvels of the age and yet we are only in the outer circle of the possibilities to be gained by teaching by moving films.

Undoubtedly as this scheme is advanced we may watch the action of various drugs upon disease conditions and thus clear away our hazy knowledge as to the final effect of medicines.

There seems to be a limit now as to what we may learn by moving pictures as applied to medicine, but before many years our medical students will see facts demonstrated that are now only known theoretically. We may certainly expect to do away with much of the rubbish in medical education and the present loose methods of teaching will be on a firmer basis.

CORRESPONDENCE

GENERAL PARALYSIS IN ANIMALS

University Farm, St. Paul, Feb. 24, 1913.

To the Editor:

Dr. Lizutard, writing from Paris to the *American Veterinary Review*, reports a communication by Prof. G. Petit, Alfort, France, before the Societé de Pathologie Comparee. In this communication there are reported researches on the pathology of the nervous system of dogs affected with a disease commonly known as distemper, the virus of which frequently localizes in the nerve centers. In different phases of this same disease we have chorea, paralysis, epilepsy, etc., and even true dementia with general paralysis of intellectual functions. Up to the present time this condition has, I believe, been held as belonging exclusively to the human, but now we have it satisfactorily demonstrated for the dog.

Prof. Petit reports definitely in the following language: "Our researches in the domain of comparative pathology demonstrate that in one animal another virus besides the syphilitic can, by its localization on the nervous centers, promote a series of lesions and of symptoms identical with those characteristic of general paralysis in man."

The histological study of the lesions in the dog has demonstrated diffused sub-acute meningo-encephalitis. The predominating symptom appears to have been gradual loss of intelligence; the memory becomes obscure; special senses become blunted or abolished. There appear characteristic indifference and automatism. There is complete disturbance of judgment from the start; e. g., the dog batters himself to death against an iron fence which separates him from another animal which he is trying to attack. A dog does not recognize his master and develops idiotism like people affected with general paralysis. Cases of automutilation were frequently observed.

Patellar reflexes are exaggerated. Motor disturbances appear early. Body-movement is irregular or unsteady. The lesions are of subacute inflammatory nature and affect principally the cerebrum, cerebellum, bulb, and spinal cord.

Prof. Petit seems to have demonstrated a very close analogy between this disease of the dog and the general paralysis of man. The especially significant point is that the same pathological condition and symptom complex is produced in at least one animal other than man by a virus other than that of syphilis.

M. H. Reynolds

Professor of Veterinary Medicine, University of Minnesota.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

At the February meeting of the Academy, Dr. Cornelius Williams presented a patient and reported the case of a woman thirty years of age suffering from great swelling of the face. Some seven or eight months ago she had gone to a "beauty doctor" in Minneapolis to have some wrinkles removed from her face. She understood him to say that he injected "vaseline" (probably paraffine) in four different places. Some six weeks later her face began to swell. The spots were small at first, but increased in size, until now she resembles a well-developed case of facial erysipelas. One place had some fluctuation for a time, but that has subsided.

Dr. H. B. Sweetser reported a case as follows:

Mrs. L., married; 33 years old; one child, 10 years old; three miscarriages; last menses early in October. In December she began to have some bloody flow, but no pain. Disturbed by this she wished to call a doctor, but on the advice of a neighbor first sought to discover if the os was open. For this purpose she passed a hair pin with looped end uppermost, when it suddenly slipped from her grasp and disappeared. This occurred Sunday, Jan. 26, i. e., eight days ago. On Sunday she remained well, but on Monday some fever and chilly sensations, but no pain. Was seen by her physician Monday evening. On Tuesday had several chills and temperature of 103 degrees F., but still no pain. Examination revealed a uterus pregnant about three months; not painful or tender; some bloody flow. Sent to hospital Tuesday, Jan. 28th, about 11 p. m., when I saw her for the first time. At this time the temperature was 102.5° F.; pulse, 100; no pain, but some tenderness; some flow of blood. On Wednesday Dr. Donaldson made a skiagram, which shows the pin beautifully, lying transversely at the level of the iliosacral joint. Temperature, 102° F.; pulse, 100; leucocytosis, 12,000; chills.

Discussing the proper procedure we threw out waiting, for the reasons that the fetus was in all

probability dead and that such a foreign body could probably not remain in the uterine cavity throughout pregnancy, even if this should proceed normally. We discussed methods of gradual dilatation but decided against them, because of the danger of the pin being driven through the uterine wall during the contraction necessary for dilatation. We therefore decided that the procedure most likely to produce the best results would be to dilate rapidly under anesthesia, empty the uterus, and fish for the foreign body; and, if this failed, to open the abdomen and the uterine cavity, and if necessary remove the uterus. This latter we thought might be necessary to control the sepsis. What we did was as follows: Painted the vagina with tincture of iodine; instrumental dilatation till one finger could be inserted; searched for and discovered the pin with a dull curette; caught one arm of the pin with dull hook somewhat like a button-hook, and employed cautious traction till the pin was delivered. The fetus was removed piecemeal, and the cavity swabbed with tincture of iodine. No drain. Now, one week after, temperature and pulse and general condition are normal.

He also reported the case of a child two years old who had empyema. He had opened and drained behind. The child was very sick, but recovered nicely after drainage was established. Some time later the child was brought back on account of a sinus, which had developed in the front chest-wall below the 5th rib. Upon investigation he found that it led to a spiculum of bone which had apparently been dissected off from the 5th rib by the burrowing of pus beneath the periosteum.

Dr. Geo. Douglas Head then read a paper entitled "The Etiological Relationship between Cancer and Ulcer of the Stomach."

Dr. Frank Corbett, in discussion, said that in one instance he had made an autopsy in a case where the cause of death seemed obscure and he found in the stomach a plaque the size of a dollar where in the center the ulcer showed simple inflammatory processes, while in the margin the epithelial cells were changed in character, and still further beyond the margin there was found what he believed to be typical carcinoma.

Dr. Colvin recalled the statement, made some two or three years ago, of the great pathologist Erb of Berlin to the effect that "we know no more now about the etiology of cancer than we did fifty years ago." He also referred to the tendency, at present, to speak of "precancerous tissue," and surgeons are emphatic in the statement that ulcer precedes cancer. In his experience operative cases do have preceding symptoms. He has observed epithelioma developing in the margin of ulcer of the leg. However, he understands that pathologists do not recognize tissue that is *becoming* cancerous.

Dr. Stumm is of the opinion that Dr. Head has drawn his conclusions too much from the statistics of years ago. The clinical evidences of today have changed the views that were based upon those old-time observations, therefore those older statistics should be wiped out. As to the age factor: Of course, ulcer of the stomach does occur frequently in young chlorotic girls, and cancer is very rare in young people, while the average cases of cancer occur in older people, and therefore we should be very careful in analysing the statistics of the older writers.

Dr. Head in closing the debate reiterated the belief that it is the tendency, at present, to greatly overestimate the frequency of the development of cancer upon ulcer of the stomach. He feels certain that the histories of his cases are worked out as carefully as those in any clinic. He recognizes the possibility of any one working into the histories of the cases he examines, the effects of strong pre-existing belief either for or against, but he feels that he has not made this error. He also believes that the older descriptions of this ailment are even more reliable than the new, for the very reason that there was not then the biased tendency of now. He repeated the belief stated in his paper that the group of cases reported by Wilson and McCarty were a vastly different class of cases from the usual typical cases of cancer of the stomach as seen in the consecutive clinical cases as they occur in practice.

To illustrate his feelings upon the subject under discussion, he said he felt like paraphrasing Lincoln's thought relative to the debates between himself and Douglas, when he said: "Upon the subjects I have treated I have spoken as I thought. I may be wrong in any or all of them, but holding it a sound maxim that it is better only sometimes to be right than at all times to be wrong, so soon as I discover my opinions to be erroneous I shall be ready to renounce them."

Dr. J. Frank Corbett then read the paper prepared by himself and Dr. J. E. Moore upon "Further Studies on Suture of the Kidney."

Dr. Moore emphasized the point that the circulation in the kidney can be clamped off, the operation made, and then closed by sutures without bleeding. The clamping off does away with the necessity for using the wire method of dividing the tissues, etc. Experimental work upon the liver also has been done successfully by the clamping off method.

Dr. Benjamin made the point that the usual kidney case that comes to operation is one that has already been injured or diseased, and therefore is different from the experimental operation upon the healthy kidney. It has been his custom in operating to pick out the bloodless area when possible, and then use a thin sharp knife. He does not like the non-absorbable suture, but prefers a fine catgut. For placing these he uses a small sharp needle with grooves on the sides of the eye so as to allow the suture to bend closely and not tear the tissues when inserted.

Dr. Corbett said, in closing, that the idea of the "bloodless zone" of the kidney is not a new one, as has been claimed, but that it goes away back to Gray's anatomy at least. He had placed buried sutures of silk in an experimental operation, and five months later had found them entirely unchanged.

A. W. Dunning, M.D., Secretary.

LYON-LINCOLN COUNTY SOCIETY

This society held its annual meeting at Tracy, Minnesota, Feb. 4th, 1913, with eight members in attendance. Matters of local interest were discussed and the following resolution was adopted:

"That this Society endorses and approves of the action of the Postoffice Department in its arrest of various individuals on indictments charging them with advertising and selling through the United States mail, drugs, appliances or services for the purpose of causing abortion. We further express the hope that the work will be continued. On adoption of this resolution the Secretary will mail a copy to the President, Post Master General, and our senators and representatives in Congress."

The officers elected for the coming year are:

President—Wm. Wakefield, Lake Benton.

Vice-President—E. T. Sanderson, Minneota.

Treasurer—C. E. Persons, Marshall.

Secretary—H. M. Workman, Tracy.

H. M. Workman, Secretary.

THE MINNESOTA NEUROLOGICAL SOCIETY

The Minnesota Neurological Society held its January meeting at the Town and Country Club in St. Paul, January 23d, with seven members present.

Drs. Riggs and Hammes presented a case showing symptoms following occlusion of the posterior inferior cerebellar artery. The essential symptoms of this condition are: sudden onset, usually without disturbance of consciousness; diminution or loss of pain and temperature sense in the limbs of the side opposite the lesion and in the fifth nerve distribution on the same side as the lesion. Tactile sense is generally unimpaired. Bilateral nystagmus is common, as is paralysis of the muscles of deglutition, of the soft palate and of the larynx on the occluded side. Taste in the anterior two-thirds of the tongue on the side of the lesion is lost. Headache, vomiting, rapid pulse, transient albuminuria and glycosuria are common.

The case presented was as follows: Our patient consulted us July 22d, 1912, and gave the following history: Sudden onset July 17th, accompanied by occipital headache, diplopia, vertigo and glycosuria. Gradually improved for four days. On the morning of the fifth day on arising noticed marked ataxia, impaired pain and temperature sensation on entire right face and left extremities. This was accompanied by hoarseness of voice and difficulty in swallowing, and severe occipital headache, more marked in the recumbent posture. The patient gradually improved, but the thermoanaesthesia, analgesia and glycosuria are persistent up to the present time.

Case I. Dr. W. A. Jones presented his case as follows:

Male, age 17 years, school boy.

Family history negative.

Had scarlet fever at seven years and could not walk well for one year afterward. He then made an apparent recovery up to about one year ago; since then if he walks about a while his legs get so weak that he must rest. After resting he can walk as well as ever until his legs again become tired. No pain or other sensory trouble.

Examination showed incondination of hands and feet, maimed lateral mystogmus and some speech defect, though not typical stammering speech. The case was exhibited as one of multiple schlerosis and shows the relationship between that condition and the acute infections.

Case II. Male, age 18 years. This boy has been under observation for three years. At the outset there were simply evidences of mental deficiency and some peculiarities.

In the interval there have been alternating breakdowns and remissions until recently, when he developed a frank attack of excitement and now is left distinctly demented.

The Minnesota Neurological Society held its regular meeting at the Town and Country Club in St. Paul, Feb. 19th, 1913, with nine members present.

Dr. W. A. Jones presented a woman of 39 years of age, suffering from myotonia congenita. The antecedent history was negative except that the mother had "cramp-like sensation in her hands." The patient is married and has had six children, four of whom died within a few weeks or months of birth of nutritional disturbances. One child is at Faribault, and one child is well; neither has any evidence of myotonia.

Since childhood the patient has had trouble in moving her hands, later in life she had trouble in moving her feet. In childhood also she had trouble in using her tongue if unexpectedly spoken to, but after some time this last symptom largely disappeared. During the past four years the patient has been considerably worse in every way.

She is a pale, worn-looking woman with well-marked pyorrhea. When asked to flex her fingers she does so, but is unable to relax them for a few moments. At request she rises slowly from the chair, and she must wait a considerable interval before starting off to walk, otherwise her body moves in advance of her feet and she falls forward. There is some general loss of motor power, but no actual paralysis. There is no sensory disturbance. The plantar reflex is normal, and the deep reflexes are diminished.

Dr. Riggs reported a similar case seen fourteen years ago, and Dr. Sneve reported a case seen recently where there was well marked enlargement of the muscles.

Dr. Sneve reported, for Dr. Sweeney, the following case, diagnosed as disseminated sclerosis. The preceding history is entirely negative except that thirty years ago the patient had a sore on the penis with no sequela. The Wassermann done from his blood is negative. Four or five years ago, when the patient was 50 years old, he began to have twitching in his legs, and sharp lightning pains in his calves. He later developed a coarse rythmical tremor in the right hand and a slight tremor in the left. There has been no muscular atrophy, but a distinct loss in weight, some spasticity in the legs and slight speech trouble. There has been some question of nystagmus. The knee jerks were active and the plantar reflexes normal. Of late he has suffered from a burning in the chest and from a twitching of the muscles of the chest, which is almost greater than that in the legs.

MISCELLANY

The following lectures in the Public Lecture Course, under the auspices of the Council of Health and Public Instruction of the American Medical Association, will be given in chapel in the Library building, at the University of Minnesota, at 8 p. m.:

Tuesday, March 11. Public Health a Public Duty, Dr. Mazyck P. Ravenel, Professor of Bacteriology, University of Wisconsin, and Director of the Wisconsin State Hygienic Laboratory.

Tuesday, April 1. The People's Responsibility in Dealing with Public Health Problems, Dr. H. M. Bracken, Executive Officer, Minnesota State Board of Health.

Tuesday, April 15. The Need for an Efficient National Health Service in the United States from an Economic Standpoint, Dr. John B. Murphy, Professor of Surgery, Northwestern University Medical School.

Tuesday, April 29. The Profession of Medicine; an Agency in Social Service, Dr. Richard Olding Beard, Professor of Physiology, University of Minnesota.

Tuesday, May 6. The Growth of Hygienic Ideals, Dr. Henry B. Favill, Professor of Medicine, Rush Medical College.

COMMITTEES FOR THE A. M. A. MEETING

The committees on the meeting of the American Medical Association in Minneapolis, June 17 to 20, have been appointed as follows:

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SECRETARY
Dr. Jennings C. Litzenberg

TREASURER
Dr. Charles G. Weston

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NEWS ITEMS

Dr. Thomas Edwards, of Drayton, N. D., died last month at the age of 75.

Dr. J. A. Regner has located in Cannon Falls, Minn., for the practice of medicine.

Dr. S. M. Kyde, of Philip, S. D., has recently returned from a post-graduate course in Chicago.

Dr. C. D. Richmond, of Windom, has moved to Jeffers, where he will take up the practice of Dr. Harmon.

Dr. Guy Edward O'Neil, Roundup, Montana, was married last month to Miss Lulu Lucas, of Glendive, Mont.

On Jan. 28th, Dr. John H. McClure, of St. Paul and Miss Mae C. Hickey, of Enterprise, Minn., were married.

Miss Lura Stinchfield, daughter of Dr. A. W. Stinchfield, of Rochester, was married to Dr. William H. Meyerding, Feb. 12th.

Dr. B. M. Conlin, of Owatonna, has sold his practice to Dr. A. B. Hart, of Pequot. Dr. Conlin expects to go to California.

Dean Wesbrook, of the Department of Medicine of the State University, had a very flattering offer to go to the University of British Columbia.

St. Luke's hospital, in Aberdeen, is to be enlarged in the spring to bring its capacity up to 150 patients. A new operating room will also be added.

Dr. Olaf Sand and Dr. Carl Kachelmacher, of Fargo, N. D., with their families, sailed from New York, Feb. 27th, to spend several months in Europe.

Ashland, Wis., has medical inspection for her schools, the work of inspection being done by the medical men of the city without charge for their services.

President Vincent of the University of Minnesota will make the opening address at the dedication of the Methodist hospital at Brookings, S. D., on April 23rd.

Dr. A. O. Bjelland, of Mankato, Minn., a former health officer of that place, and a former president of the Minnesota Valley Medical Society, died Feb. 25th.

The University of Chicago is planning to make Chicago the medical center of America. It would establish a great medical school, with Rush as the foundation. Advanced research work would be carried on, and the buildings for the school would cost millions of dollars.

OFFICE FIXTURES FOR SALE

A full line of surgical instruments, Yale combination chair, a new Bausch & Lomb microscope, books and office furniture, all in the very best condition, being the property of the late Dr. S. H. Van Cleve. Address C. M., care of this office.

FOR SALE

Complete set of instruments, office furniture, books, etc., belonging to the late Dr. B. F. Graham, occulist and aurist, can be seen at No. 28 Hyland Ave., Minneapolis.

AMBULATORY SPLINT FOR SALE

An ambulatory with pelvic attachment, cost $55; never been used; will sell for $27.00. Chas. T. Granger, M. D., Rochester, Minn.

HOSPITAL FOR SALE OR RENT

A new and modern hospital building in a North Dakota town in a fine and prosperous community, mostly Americans (Catholics), is offered for sale or rent at a moderate price. This property belongs to a doctor's widow. It has 16 rooms, hot water heating plant, a beautiful location. The opening is an excellent one for a doctor. Address S. G., care of this office.

PRACTICE FOR SALE

In a Minnesota town of 3,000, in a thickly settled and prosperous territory. General and surgical practice paying $4,000 to $5,000 a year. Reason for selling: My sick child must live in the south. Will sell only to competent and well-recommended man. Price, including up-to-date equipment, $2,000. Address L. A., care of this office.

SANITARIUM MANAGER WANTED

A good M.D. is wanted to act as physician and manager of a sanitarium near the Twin Cities. Write to E. J. Smith, 268 E. Annapolis St., St. Paul, Minn., giving particulars and salary expected.

PHYSICIAN WANTED

A physician is wanted in a good, live town in North Dakota; Norwegian or German preferred. For particulars, address Charles N. Taber, Reynolds, N. D.

PRACTICE FOR SALE

In western Minnesota, $3,000 cash practice; town, 850; best farming community in state; large territory. Practice well-established but can be largely increased by doing surgery. Appointments alone will soon pay price asked, namely, $500 cash. No red tape. Possession immediately, retiring. For particulars, address S. P., care of this office.

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A small modern hospital and a modern residence in a Minnesota town of 2,000, and prosperous farming community. Practice amounts to $4,500 and can be doubled by a good surgeon. Price of real estate, $8,000; which is less than the buildings are worth. Will introduce successor and give possession next fall. Address, U. S., care of this office.

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A well-established practice for sale in good town of two thousand population in southern Minnesota. German or Scandinavian can do well right from start. This is a snap that will bear inspection. Address D. W., care of this office.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

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THE THOMSEN MASSAGE AND HYDRIATIC INSTITUTE

As has been pointed out in these columns before, the above institution was founded by some of our leading physicians to meet their own needs, and Mr. Thomsen was appointed its manager. It was conducted under the auspices of these physicians for several years, and it has not since departed from the rules then laid down for its management.

It is perhaps the only institution of its kind in Minneapolis that recognized the fact that its treatments should be given under the prescription of a medical man. No physician need hesitate to send a patient to it when such patient needs treatment of this kind.

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To our certain and pleasant knowledge, Dreer, of Philadelphia, has gained the love of a large number of Minnesota amateur workers in vegetable and flower gardens by the high and uniform character of his seeds and plants. Bad seeds or poor shrubs or bulbs dishearten one who plants for either pleasure or profit; and it is very unwise to order a package of seeds or a shrub from one whose reputation is not thoroughly established, both for his ability and his honesty.

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SACRED HEART SANITARIUM

There are few institutions anywhere in this country devoted to the treatment of nervous, mental, and drug cases more highly to be commended than the Sacred Heart Sanitarium, of Milwaukee, Wis. The buildings are commodious and fireproof; the surroundings are excellent; the medical supervision and the attendance are of the highest grade; and the prices are very moderate. Such an institution cannot be found in every state, and, indeed, cannot be built up except under unusual conditions. Sacred Heart is what it is because it has grown out of conditions that make for success in any line. It has long met the needs of a very large class of patients who often seek in vain for an institution of like character.

Dr. S. S. Slack, the superintendent, will be pleased to correspond with any reader of this paper who has patients in need of treatment in this line of work.

THE MINNEAPOLIS MILK COMPANY

The physician who is interested in obtaining the best possible conditions for supplying milk to the masses of the city's population should not forget what the Minneapolis Milk Company has done in this direction under very hard circumstances. The milk for Minneapolis and for St. Paul comes from country dairies that cannot be supervised by the health officers of the cities, and the demand for milk has increased so rapidly that the depot and handling-house of yesterday is not adequate and may be out of date today.

Under such conditions this company has met the demands of the public and has not failed to receive and distribute enormous quantities of milk under all the requirements of modern milk inspection. The managers of the company deserve very great credit for their efforts to comply with all ordinances and to co-operate with the medical profession in its efforts to better the conditions under which all the milk of the two cities is supplied. Except for such hearty co-operation the two cities would not now be boasting of their greatly reduced mortality among babies.

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The arrest and cure of tuberculosis, so far as the profession now knows, depend solely upon expert medical supervision of each case under conditions of climate and local environment that make for health. In other words, the hope of permanent cure in even the most favorable case is based upon the skill of man and the power of nature.

The Pottenger Sanitarium, of Monrovia, California, is under the supervision of a man of worldwide reputation in this line, and he has selected and created conditions under which he believes the best results can be attained. These facts must commend Dr. Pottenger's institution to every physician who has to assume the responsibility of giving advice to a patient facing the insidious onset of tuberculosis. If there is one of our readers not familiar with the work and the writings of Dr. Pottenger and with his sanitarium, which is near Los Angeles, California, such physician surely is hardly able to tell a tuberculosis patient what opportunities are open to him for his restoration to health.

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TRACHOMA WITH ESPECIAL REFERENCE TO THE STATE OF MINNESOTA*

BY TALIAFERRO CLARK,
Surgeon, U. S. Public Health Service
EVANSVILLE, INDIANA

Comparatively few of our fellow citizens realize our country is annually invaded by an army of approximately one million people. It is a vast army, on conquest bent, marching, not to the blare of martial music in the shadow of flags of battle, but steadily, monotonously, in the stride of industrial feet,—the great army of foreign immigration. In every army are to be found excellent soldiers, indifferent soldiers, and "hangers-on." So with the army of aliens arriving at our shores, consisting, for the greater part, of worthy people seeking to better their condition. Still this army has its large quota of camp followers.

Our forefathers, for the sake of political and religious liberty, braved many perils by sea and by land to establish themselves in the virgin land of the west. Only the fit attempted and the strong accomplished such an undertaking. Today immigrants arrive by the thousand in floating palaces, surrounded and guarded by every modern device for comfort and safety. Agencies and subagencies of the great transportation companies are located along the way, like sign-posts, to direct and guide the present-day immigrant from the time he leaves his native village until the journey is ended. Step by step with this increased safety and comfort, more and more defectives have sought entry to our country, and in such numbers that Congress, from time to time, found it necessary to enact increasingly stringent laws regulating immigration, denying entry to undesirables.

Several years prior to 1897, oculists were viewing with alarm the great increase in the number of cases of contagious ophthalmia in persons of foreign birth seeking relief at the various clinics and dispensaries of our cities. Finally, in this year, on the strength of such representations, the Secretary of the Treasury declared trachoma a dangerous, contagious disease, bringing it within the mandatory provisions of the immigration law denying entry to the country to persons so afflicted. From this time on the study of trachoma has become a matter of growing interest and importance to a host of patient, scientific investigators in this country.

Indeed, only quite recently, the Russell Sage Foundation called a conference in New York and organized the American Association for the Conservation of Vision, whose duty it shall be to systematize the chaotic forces of our country, for the prevention of blindness from all causes, not the least important of which is trachoma.

Trachoma is as old as civilization. If we accept the deductions of the Medical Historian from the Ebers papyrus, it existed in Egypt fifteen hundred years before the time of Hippocrates. To the Napoleonic wars is given the credit of its spread throughout Europe. Boldt claims that trachoma was quite prevalent in Europe prior to the return of Napoleon's army from

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Egypt, and that the ensuing wars hastened its spread by reason of conscriptions and the custom of quartering troops with the inhabitants.

Of greater interest to us of the present time is the fact that trachoma is now a world-wide disease. The writer, in the eleven years he was engaged in the medical examination of arriving aliens, has seen cases coming from Europe, Asia, and Africa, West Indies and South America. The disease is liberally distributed throughout the United States. There are many cases in the state of Minnesota. There are cases of the disease even here in the city of Duluth.

PREDISPOSING CAUSES

The cause of trachoma is yet an unknown quantity. Many and varied agencies and conditions have been considered predisposing. Such has been the case with every obscure disease. Of these conditions we may mention air, water, soil, altitude, age, sex, race, individual susceptibility, general state of health, etc.

The writer does not believe that trachoma is an air-borne disease, except possibly and merely as an adventitious circumstance. S. Stephenson[2], reporting on one of the English ophthalmic schools, says that during five years not a single case occurred among the sixty-five nurses or the sixteen teachers, or among any of the help. This school was conducted on the assumption that contagious eye-affections are spread by direct or indirect conveyance of specific discharges from eye to eye. Sulzer[3], on the other hand, says that many more cases of trachoma develop in Java during the dry season than in the wet. The explanation seems simple: irritation from dust causes many quiescent trachomas to become active with increased secretion, *pari passu*, more virus is spread by these sufferers. Healthy eyes also become irritated, and the fingers are in contact with the eyes more frequently, affording a greater liability to convey infection directly.

A great many writers dwell on the point that trachoma is a disease of low-lying, well-watered countries, and maintain that the condition of the soil and amount of moisture therein are necessary for the propagation of trachoma virus. Dr. W. H. Harrison[4], of the Indian Medical Service, on the other hand, reports 60 per cent of one band of Puebla Indians, living at an altitude of 7,000 feet, in New Mexico, afflicted with trachoma.

It has often been asserted that certain races are immune to trachoma. The exceptional facilities afforded officers of the Public Health Service, in their work examining arriving aliens, renders them skeptical of the truth of such an assumption. We find no race is immune. That the disease is more prevalent among some than others is true, but this is explained by the greater or less degree of social refinement of the laboring class in states or communities so afflicted. The negro is not immune to the disease. He has simply been protected by environment. In the South he is socially ineligible for trachoma. Communities in this country in which trachoma is now prevalent are those most affected by the tide of immigration. The South has received but a small percentage of aliens, therefore but little trachoma has been introduced, and, even where introduced, social restrictions have been such as to protect the negro.

The writer, in a recent investigation in co-operation with the State Board of Health, found a very high percentage of trachoma among the Chippewa Indians of this state. An examination of school children in surrounding communities showed no trachoma in the white population. The lack of social intercourse between the whites and Indians explains the protection of the former.

Feuer[5], quoted by Boldt in his most excellent work on trachoma, says: "When contagion has once been sown amongst a peasant population, it is scarcely possible to prevent its further spread. The younger generations continue to dwell on the same farm, young wives marry into the family, and, if any have trachoma, transmit it, not only to their husbands, but also to the whole household. The common towel, the cross before the church, which is touched and kissed by everyone, the tender embraces indulged in under the influence of alcohol—all help to spread the disease."

* * * * * *

"At another farm a group may be seen seated on the ground busily sorting dried tobacco leaves; from time to time one or other arises, goes to the table, and washes his eyes, which are irritated by tobacco dust, and dries them with the common towel. Lastly we may describe the abominable custom which is practiced in Alföld: The bride or young wife, as the case may be, goes from one wedding guest to another, washes each one's face from a common wash basin, certainly very superficially, and then hands him the common towel to dry it with." Alföld is one of the most heavily infected districts in Hungaria. The customs, habits, morals, and degree of ig-

norance determine the prevalence and propagation of trachoma, when once introduced into a community, rather than climate, soil, water or location.

Unfortunately, the opinions of the vast majority of writers on trachoma have been founded on observation of limited communities, the salient features only of which have impressed them as being a causative factor, hence such divergence of opinion.

No age is exempt, excepting the very young, and that for histological reasons, to be explained later.

Individual susceptibility certainly plays an important rôle, and is unquestionably exhibited in other diseases. In addition, the conjunctiva, weakened by previous or existing inflammation, by injuries, by a lowered general physical condition, certainly offers less resistance to invasion by the infecting agent of trachoma. Such conditions are not essential. The writer has seen the disease repeatedly in the otherwise healthy and robust, and strong.

BACTERIOLOGY OF TRACHOMA

The biology of trachoma is far from settlement, and our present knowledge thereof is of importance only to the practical bacteriologist.

Insofar as the average practitioner of medicine is concerned, the "it is" and "it is not" of the bacteriologists, combined with the yet unsettled general opinion of the clinical aspect of trachoma, is simply compounding of confusion.

It is not the purpose of the writer to decry the earnest work of a host of patient and painstaking bacteriologists, nor to minimize the great advances made toward the solution of the problem, but solely to emphasize the fact that we do not yet know the causative agent of trachoma, and that we must, for the present, content ourselves with a diagnosis based on the clinical aspect of the disease, and endeavor to gain a clear and uniform conception of its clinical manifestations.

A host of organisms have been isolated from trachomatous eyes from time to time, leading one to the conclusion that trachoma is, more often than not, a mixed infection.

Halberstaedter and Van Prowaczek[6] found, in 1907, in Java, certain intra-epithelial bodies in the trachomatous conjunctiva, called by them *chlamydozoa*. Within these enclosures were found round coccus-like bodies with a light areola, which multiply by division, assuming the form of diplococci, and which stain red or reddish violet. (Giemsa.)

About the same time, Professors Greeff, Frosch, and Clausen[7], of the Royal Prussian Commission, found in the secretion, the epithelium, and the trachomatous follicle certain very small, point-shaped, double bacilli-like bodies, which appear round in high magnification, always surrounded by a light areola, single and in groups. Those they called trachoma bodies.

These inclusions and the so-called extra-cellular initial bodies, described by Lindner[8], representing, as they do, a distinct advance in our knowledge of trachoma, now occupy the center of the controversial stage, to-wit: their nature and their significance.

Greeff[9], four years after his first reports, summarizes the matter. He denies, to a certain extent, that these formations are morphologically exactly determined, so that they can be surely distinguished from other formations; asserts that they are found in other conditions than trachoma; and says: "If I am asked for my opinion as to the significance of trachoma corpuscles, I must readily answer: I do not know." He further naively remarks: "If I see that the same author had to change his opinion, within a short period, three or four times, and had to adapt it to each new finding, one must concede that the theories were not stimulating or fertile, but impeding."

Noguchi and Martin Cohen[10] conclude that the finding of trachoma corpuscles in a few cases of conjunctivitis follicularis (9 in 250 cases), in trachoma, blennorrhea neonatorum, non-gonorroica, and in blennorrhea gonorrhoica in children, suggests the hypothesis that the so-called trachoma bodies represent an etiological factor in an independent conjunctival affection which is not complicated by pannus or cicatrization and which clinically resembles trachoma with acute manifestations or the papillary stage of blennorrhea gonorrhoica. On this hypothesis the presence of the so-called bodies in trachoma and in blennorrhea gonorrhoica is to be interpreted as the result of the engrafting of the disease caused by these bodies on the original infection.

Finally, Addario[11] doubts their specificity, because, besides finding them in other conjunctival inflammations, he also found them in the normal conjunctiva.

Dr. Anna Wessels Williams[12] has recently published an account of the finding in a case of a tiny hemoglobinophilic bacillus which has a

morphology and staining characteristics very similar to those of some of the trachoma inclusions. The basic fact is her belief that in the culture of the tiny hemoglobinophilic bacillus, she has secured, morphologically, a culture of trachoma inclusions.

In all she has isolated 128 strains of a hemoglobinophilic bacillus, without being able to find any distinct differential point between any of them and those of the bacillus influenzæ.

It is of interest to note that L. Muller[13], in 1897, found, in 23 out of 63 cases of trachoma, a baccilus, culturely, not distinguishable from the bacillus influenzæ.

The microscopic study of the causative agent of trachoma, though interesting, important, and of great promise, is still *sub judice*, and can not be relied on for purposes of diagnosis.

THE PATHOLOGY OF TRACHOMA

The pathology of trachoma is simple. The sac formed by the inner surfaces of the lid and eyeball is lined with the conjunctiva, which is covered by several layers of cylindrical epithelium on the palpebral portion and in the fornix, the ocular portion being covered by flat epithelium. At the margin of the cornea the conjunctiva becomes firmly attached to the underlying structure and somewhat thickened, forming what is known as the limbus corneæ, but is continued over the cornea, by its pavement epithelium. The palpebral conjunctiva presents a velvety appearance, on close inspection, produced by an irregular reticulate arrangement of minute grooves and pits forming pseudopapillæ.

The mucous layer proper of the conjunctiva presents a discrete infiltration of lymphoid cells in the meshes of its connective tissue. This adenoid layer is not found in the conjunctivæ of the very young, and begins to form within a few months after birth, but may be delayed as long as the third year. For this reason it is an exception to find trachoma in a child under two years of age. This adenoid layer is not found in the scleral portion of the conjunctiva.

At the convex border of the tarsus are found numerous acinomucous glands, and in the fornix the analogous follicles of Krause.

In trachoma there is an enormous lymphoid infiltration with cells aggregating into masses, forming papillæ, which, after receiving a vascular supply, degenerate, rupture, and undergo cicatrization with the formation of the characteristic scar tissue of trachoma.

SYMPTOMS OF TRACHOMA.

External manifestations of trachoma vary with the stage of the disease, and are most obvious in the first and last.

It has frequently been stated that there is no such thing as acute trachoma, that the disease begins insidiously, that its existence is sometimes discovered fortuitously, and in other cases not until some of its complications call attention to the true underlying affection. The weight of our experience certainly bears in the other direction. It is the writer's belief that trachoma first manifests itself as an acute inflammation of varying intensity; and that an accurate history of every case would show it did so begin.

The disease is more prevalent among people who seek medical advice only in the grave issues of life, and who would hardly seek relief at the hands of a physician for an inflammation of the eye unless extraordinarily severe.

The writer has, time and again, in the examination of immigrants, been impressed with the apparent insensitiveness of the conjunctiva in very many of these people, evidenced by the presence of foreign bodies, so frequently discovered on eversion of the eyelids, exciting no complaint on the part of the subject. Surely it would require a severe condition of the eyes to cause such an individual to seek medical assistance.

In the number of acute cases it has been the advantage of the writer to see, the commencement was that of a severe conjunctivitis, with lachrymation, photophobia, and pain. The lids were swollen, but not greatly so, except in a few cases. The ocular conjunctiva was injected, and in some instances considerable chemosis was present. The act of everting the lid caused considerable pain. The palpebral conjunctiva and that of the fornix was congested, turgid, and thrown into folds with swelling of the normal follicles. Later, in spite of treatment, the discharge became sanguino-purulent and muco-purulent with the development of numerous papillæ, the beginning of an acute papillary invasion. These papillæ vary in size according to situation and the density of the conjunctiva. They are smaller in the closely adherent tarsal conjunctiva and are of increasing size as the fornix is approached, where, at times, coalescing, they may assume distinct masses or folds. In a very dense and tightly adherent conjunctiva, they may not become visible until after the subsidence of acute inflammation. In color they

vary according to the amount of inflammation and the laxity of the conjunctiva, being red in a lax and greatly inflamed conjunctiva and becoming reddish-yellow to gray with the subsidence of inflammation. In the early stage of papillary formation the reflex is glistening, but later becomes dull, like that of raw, lean meat. The stage of acute papillary invasion, after a varying period, gradually merges into that of scar-tissue formation, in which the first external manifestations of the disease are less obvious, in uncomplicated cases. Secretion diminishes, ocular congestion clears up, and photophobia passes away. Everting the lid there seem to be faint lines of cleavage in the aggregation of papillæ, the forerunner of radiating lines of scar-tissue, which are later to become manifest as minute whitish lines, the beginning of nature's reparative work. With the advancement of cicatrization, the so-called granulations of trachoma are often found separated into bands or islands, a very characteristic appearance of cases far advanced toward spontaneous recovery. Gradually the conjunctiva smooths over, the superficial layer of which is thrown into tiny folds and gives a clear reflex, wavy like glass that has been melted and drawn out. This is especially to be observed in the tarsal sulcus, forming the so-called cicatricial band of Arlt. The amount of scar-tissue formation in the lower lid is seldom so great as in the upper. It has been suggested that this is due to the probable absorption of trachoma papillæ, owing to the laxity of the tissues in that situation. The writer desires to re-assert, in this paper, that he has never seen a case of acute trachoma which, it could be definitely asserted, had its incipiency on the lower lid.

The first external manifestation of scar-tissue formation is a lagging of the lid on movement of the eyes. Later, there is ptosis, the edges become thickened and eventually clubbed.

At any time during the period of cicatrization, a trachomatous eye may undergo an exacerbation and become acutely inflamed, so that it often becomes necessary to wait until such inflammation subsides, before the true nature of the underlying process can be determined, in such an eye seen for the first time. Whether such exacerbation is due to some of the well-known organisms, or to a reinfection, is a question which can not be definitely determined until the etiology of trachoma rests on some sure bacteriological foundation.

THE CAUSE OF TRACHOMA

The course of trachoma is essentially chronic. The so-called abortive forms are of doubtful diagnosis; certainly an inflammation of the conjunctiva that cleans up readily, leaving no traces of the disease process, is not characteristic of trachoma, which so stubbornly resists treatment.

TYPES OF TRACHOMA

So also with the so-called types of trachoma. Such division is arbitrary and confusing. Trachoma is always one and the same. The varying appearance of the conjunctiva is due to the varying virulence of the exciting agent, natural resistence of the tissue, intensity of inflammatory process and to the histological structure, whether rich in lymphoid cells or not, whether lax or firm, and, to a certain extent, to the varying vascularity of different conjunctivæ.

It is necessary to have a clear conception of the normal appearance of the conjunctiva, combined with some experience of trachoma, to enable the practitioner to draw accurate conclusions from such varying appearances.

PANNUS

Pannus is considered by some authorities a complication of trachoma, and by others a direct extension of the trachomatous process, in other words, a symptom. It is usually found occupying the upper half of the cornea, and may involve the whole surface. Pannus is characterized by a brawny haziness of the cornea, somewhat translucent, and consists of an infiltration of cells between the conjunctival epithelium and Bowman's membrane. Throughout this infiltration are seen vessels extending over from the sclera, branching many times. This cellular infiltration may be thick in spots, giving the pannous film a roughened or nodular appearance. Should the process extend deep, with injury to Bowman's membrane, the result is ectasia corneæ, and even formation of ulcers.

One of the most notable believers in the unity of pannus and trachomatous extension is Fuchs. On the other hand it is the belief of many that pannus is produced by an irritation by the diseased upper lid, and that its situation in the upper portion of the cornea indicates such is the case. It is certainly hard to reconcile the conditions as a trachomatous extension with the known freedom of these structures from adenoid tissue, and also with the fact that pannus may be seen late in the disease, coincident with entropion, trichiasis, and a sclerosed conjunctiva.

SEQUELLAE

Distortion of the lids, producing entropion and ectropion, trichiasis and districhiasis, is the result of contraction of the scar-tissue formed in the layers of the conjunctiva. It has already been explained that cicatrization begins sooner and proceeds more rapidly in the tarsal sulcus. This contraction draws down the fornix until it may be obliterated and the conjunctiva passes directly from the lid to the bulb. At the same time the tarsus becomes warped and twisted, producing deformities already mentioned.

Epiphora is caused by obliteration of the caruncle and closure of canaliculi by cicatricial contraction. Narrowing of the palpebral slit is occasioned by thickening and distortion of lids, as well as by the formation of symblephara.

Pannus, failing to clear up, staphyloma, and scars of healed ulcers occasion blindness. Blindness is also induced, late in life, when the circulation of lymph is normally sluggish, by pressure of the thickened lids of a recovered trachoma, impeding still further the flow of lymph in the meshes of the corneal structure, which, combined with irritation, interferes with its proper nutrition.

PROGNOSIS

Prognosis for vision is not good. About 90 per cent of all cases of trachoma result in damage to vision, ranging from slight refractive errors, due to change in corneal curvature, to complete blindness.

DIAGNOSIS

The diagnosis of trachoma must, for the present at least, be based on the clinical aspect of the disease as evidenced on inspection.

No person is competent to diagnose trachoma, in its protean manifestations, who has not acquired a clear conception of the appearance of the normal conjunctiva and the changes often found therein that are without pathological significance.

The writer finds it more advantageous to examine for trachoma with the patient standing. The examining physician should stand with his back to the light, the patient facing him. The patient's chin is tilted, throwing the head back, thus causing him to look downward, rendering it very easy to expose the superior cul-de-sac fully and without discomfort.

For this purpose the writer uses a small collar buttoner. It is nothing more than a small loop of rigid wire continued into a short metallic handle, which is easy to keep clean and does not cause pain.

With the patient's head in the position indicated, the eyelashes are grasped by the fingers and thumb of the left hand and the lid drawn away from the eyeball and upward, at the same time pressing gently downward and slightly backward with the buttoner against the palpebral fold until the whole conjunctiva is exposed. Artificial light should not be used in making the diagnosis of a doubtful case. The detection of beginning scar-tissue formation with artificial illumination is certainly not so easy or so sure as by daylight.

The diagnosis is made certain by the presence of the so-called hyperplastic granulations associated with the formation of scar-tissue. On those two hang all the "Law and the Prophets" of trachoma. It is possible for one of much experience to predict with great certainty the presence of trachoma from the appearance of the granulations alone, but assurance is made doubly sure by the presence of scar-tissue.

The experience of the writer has been that trachoma once well engrafted cannot be aborted. It can be modified in its course and controlled, but there always remains this scarring that tells of the struggle.

Pannus has been considered a diagnostic symptom of trachoma, but it is not constant, occurring in 30 per cent to 50 per cent of the cases.

DIFFERENTIAL DIAGNOSIS

Trachoma is to be differentiated from follicular conjunctivitis. Arguments concerning the unity or duality of the two, on the part of the several supporters of these theories, remind one of the knight in Butler's Hudibras:

"On either side he would dispute,
Confute, change hands, and still confute."

Follicular conjunctivitis is a follicular hypertrophy not a hyperplasia. The conjunctiva does not lose its mirror-like reflex, and the follicles are never infiltrations, but seem rather as if set on the conjunctiva. The conjunctiva is not infiltrated or thickened; there is no scar-tissue formation and no pannus. It is an affection due to long-continued irritation, mechanical, chemical, or refractive. It is amenable to treatment and leaves the conjunctiva unchanged.

In chronic cases it is often attended with the formation of chalky deposits, a condition the writer has never seen in trachoma. It is not contagious, and may exist for years without

causing any corneal involvement. It often disappears suddenly without treatment, which is not the case with trachoma.

The examiner will frequently be confronted with an *inflamed* conjunctiva showing hypertrophied follicles without the formation of scar-tissue, in communities where trachoma is prevalent. Such cases should be regarded with suspicion. Application of the therapeutic test, with attention to the proper hygiene of the eye, will clear the diagnosis.

Parinaud's conjunctivitis need cause no trouble. It is frequently attended with constitutional symptoms, is usually confined to one eye, is accompanied by an enlargement of the pre-auricular and cervical glands on the affected side, has a tendency to ulcerate, and exhibits polypus-like formations in the conjunctiva that may project below the margin of the lids. The condition clears up under treatment leaving the conjunctiva smooth.

In vernal catarrh, of Frühjahr's conjunctivitis, the conjunctival surface is studded with small elevations which may be mistaken for trachoma follicles. They are broader, flatter, in orderly arrangement, likened unto a mosaic, the whole frequently covered by a milky film. This disease is more or less chronic and tends to recur, but yields to treatment and leaves the conjunctiva unmarred.

The finding of "trachoma inclusions" in certain types of gonorrheal blennorrhea raises once more the question of the duality of the two diseases. The writer can express the situation no better than in the language of Greef: "In gonorrhea follicles never occur, not in the whole course, not even microscopically. No cirrhosis follows. This is neither macroscopically nor microscopically present after the termination of the disease. The gonorrhoic ophthalmia never becomes chronic. Whether the cornea has remained intact or been destroyed, after a certain time nothing is found in the conjunctiva, not even in excised microscopical pieces, which I have examined repeatedly."

The writer has never seen a case of gonorrheal ophthalmia which did not respond to treatment, producing no changes other than corneal.

Furthermore, accepting the statistics of genito-urinary surgeons as to the enormous prevalence of gonorrhea in urban populations, there should be a proportionate manifestation of trachoma among such populations. On the contrary, in many cities and towns having a high percentage of venereal infection, trachoma is practically unknown.

Acute conjunctivitis can be confounded only with the early stage of trachomatous invasion. The normal conjunctiva is marked by a reticulate arrangement of numerous pits and furrows and certain mucous glands. The uneven swelling of the mucous membrane, by reason of this arrangement, may simulate trachoma formations. Appropriate treatment soon clears up the diagnosis, which may have already been indicated by a microscopic study of the secretions.

Ordinarily, a typical case of trachoma is easy of diagnosis. On the other hand cases which have been masked by treatment and those which are atypical require great care and nice discrimination. Such cases must be held under observation with or without treatment, as the condition warrants, and the true nature of the process will soon manifest itself, clearing up entirely in the one case, remaining stationary or becoming more pronounced and characteristic in the other.

A condition called adenomatous conjunctivitis by the writer, for the want of a better name, may be mistaken for the so-called brawny trachoma of Stellwag. It is occasioned by a prolonged non-specific irritation superimposed on an individual idiosyncrasy. It is confined to the retrotarsal fold, and is characterized by a hypertrophy of the normal lymphoid follicles of that region, which assume a frog-spawn-like aspect. In this condition there is no infiltration, consequently no cicatrization. Under suitable treatment this condition may be relieved without leaving the distinctive traces of trachoma.

The brawny trachoma of Stellwag is simply a coalescence of trachoma follicles into distinct masses in a conjunctiva already richly infiltrated with lymphoid cells. Other usual characteristics of trachoma are also present, notably, infiltration and thickening of the conjunctiva.

CONTAGIOUSNESS OF TRACHOMA

In recent years a tendency to minimize the contagiousness of trachoma has begun to manifest itself on the part of certain members of the profession and others, either from the standpoint of personal interest or that of insufficient powers of observation and deduction.

Cases of trachoma running into the hundreds of thousands are awaiting in European ports the removal of restrictions, in order to migrate to America. When it is remembered that friends

and relatives of these people acquire the franchise within five years after arrival, and, in many instances, hold the balance of political power in our dense centers of population, it is quite credible that such a propaganda may be instigated from personal and selfish considerations, rather than broad and patriotic motives.

The high standard of living obtaining in this country militates against the spread of trachoma, it is true, but such conditions may not continue indefinitely. The increasing high cost of living is causing the pinch of poverty to be felt more and more. To some meat has now become a luxury. Congested districts are becoming more congested, and high rentals tend to overcrowding. Poverty begets carelessness in personal hygiene and is the handmaiden of ignorance. Combine ignorance, lack of personal cleanliness, and overcrowding, and sow in such soil the seed of trachomatous infection, and its contagiousness will manifest itself abundantly.

It is a well-known fact that known bacteria gain or lose in virulence under favorable conditions of environment or otherwise. Analogously the same reasoning may apply to the infecting agent of trachoma. Witness such a favorable soil among the Indians of the Pine Point District of White Earth Reservation, of this state, recently surveyed by the writer in co-operation with the State Board of Health. Over 50 per cent of the Indian population of this district are afflicted with trachoma. The writer examined a group of seven related Indians, overtaken by the roadside. One of these was an infant in arms, therefore a negligible quantity. Four of the remaining six had trachoma.

The oft-quoted 48 cases reported by Scherechewsky, that occupied the same compartment on the S. S. Oldenberg, infected in the course of the voyage by four cases in acute exacerbation, is certainly illustrative of the contagiousness of trachoma under favorable conditions.

Similar experience has been recorded by the writer, during his service at the Port of Philadelphia, Penn., in 1910. Thirty-five acute cases of trachoma were discovered on the arrival of one vessel and twenty-nine on another. That these cases developed on shipboard after passing inspection at the German frontier and at the port of embarkation is certainly indicative of a common source of infection, rapid development, and marked contagiousness.

Dr. C. W. Bray, of Biwabik, pointed out to the writer a small frame boarding house on the outskirts of that town, in which twelve cases of trachoma developed among miners boarding there.

The following extract from the *Journal of the American Medical Association*, May 4, 1912, is explicit as to the contagiousness of trachoma.

TRACHOMA IN HUNGARY.

Although the government makes every effort to check the spread of trachoma by employing specialists in trachomatous districts, still the disease is appearing in new regions where formerly trachoma was unknown. In some districts in southern Hungary there are so many trachoma cases that special schools with trachomatous teachers have had to be erected for trachomatous children. The number of soldiers who have to be dismissed from the army on account of trachoma has grown in recent years to such proportions that the minister of war has decided to form trachomatous regiments with trachomatous officers, because, if all the trachoma cases were further to be dismissed from the army there would be serious deficiencies in the number of soldiers. Another advantage will be gained thereby. It sometimes happens that a soldier, weary of service, simply goes to a trachomatous friend and has the latter insert a penny under his eyelid. Then the soldier puts the infected penny under his own lid and rubs it well to get the disease; and in every case he gets it. If trachoma is no longer a ground for exemption from service, the soldiers will not risk their eyes in this way.

Instances could be multiplied to show that trachoma needs a special environment only to become extremely contagious.

DURATION OF CONTAGIOUSNESS

The duration of contagiousness of a case of trachoma is an unknown quantity. The contagious element is contained in the moist secretion, therefore, an eye not secreting is less liable to convey contagion than one which does. A quiescent trachoma may undergo acute exacerbation, or become inflamed from attack by other organisms. It is possible for the secretions from such eyes to contain the infecting agent of trachoma.

Since the adenoid tissue of the conjunctiva is the seat of the disease, it may be said to exist until such tissue has been replaced by scar formation. Consequently trachoma is certified by the officers of the Public Health Service, as a dangerous, contagious disease of the eyes until the process of cicatrization shall have been completed. To do otherwise would leave a wide margin to personal equation that might, in all sincerity, admit to the country cases that would subsequently light up and spread contagion.

TREATMENT

Treatment of trachoma has run the therapeutic gamut, from antitoxin to zinc. Indeed, this is not to be wondered at, because no one method of treatment can be employed with any degree of specificity or as a matter of routine. Each individual case must be treated in accordance with the indications. However, certain broad principles may be laid down as a guide to the measures that should be employed, to-wit: Modify inflammation, control reaction, hasten absorption, and prevent scarring.

The earlier treatment is instituted, the greater will be the success in arresting the disease.

Generally speaking, in the stage of invasion, when the conjunctiva is swollen, red, and juicy, some preparation of silver should be used or the glycerite of tannin, with or without the use of cold applications. On the other hand, a firm, pale conjunctiva, with granulations and scant secretion, requires stimulation, using the copper stick to excite reaction as an aid to absorption.

Some cases do very nicely under the mildest kind of treatment, and in others it often becomes necessary to discontinue treatment for a time, especially when too violent reaction ensues.

Grattage, using a tooth-brush and a $\frac{1}{500}$ mercuric chloride solution, is brutal and causes too great laceration of the conjunctiva. The method of Coover[14] is analogous. He uses No. 0 to 00 sandpaper and general anesthesia. The paper is cut into suitable strips, dipped into alcohol and burnt off, for sterilization, and the whole conjunctiva brisky rubbed. Coover claims this method is applicable to all forms of trachoma, that it is followed by very slight reaction, and that the after-treatment by the copper stick is not necessary.

Fernandez[15] claims excellent results for the method of LaTorro of Vera Cruz. The conjunctiva is cocainized, using a 10 per cent solution. A cotton swab, soaked in distilled water, is impregnated with powdered salicylate of sodium and rubbed firmly over the diseased conjunctiva. The treatment is repeated every three or four days. Fernandez claims to have failed of cure in less than 10 cases out of 400. It is significant that the cases were all acute.

Smith[16] of Calcutta has employed subconjunctival injections of cyanide of mercury in 1,500 cases of trachoma.

Twenty minutes before the operation he administers two grains of opium to counteract the severe after-pain. The eye is cocainized by the instillation of a 10 per cent solution of cocaine. A speculum is introduced, the eye fixed, and drawn down; and twenty minims of a $\frac{1}{4000}$ solution of cyanide of mercury is injected beneath the bulbar conjunctiva in the upper fornix. The palpebral and bulbar conjunctivæ become very edematous, subsiding in five or six days, leaving the conjunctiva deeply injected. If necessary, he gives a second injection on the sixth or seventh day. He claims excellent results in all cases but one, in the early stages of the disease. His best results were obtained in pannus.

A serious objection to any form of injection is the liability of the formation of fibrous nodules in the conjunctiva.

My friend, the late Dr. Kassabian[17] of Philadelphia employed the .r-rays in some cases of trachoma, in the Philadelphia Hospital, with but indifferent success. Even if this remedy were successful, the great danger of burning the cornea, with disastrous results, would militate against its general employment.

Treatment of trachoma with radium has not been successful. It requires weeks of treatment, each exposure of considerable duration, to produce any reaction.

Horston[18] claims to have effected a cure in forty or fifty cases of trachoma treated with carbon dioxide snow, requiring from five to eighteen applications. It is not applicable to acute cases with secretion and edema. The powerful escharotic effect of this remedy is well known. The potential damage of a remedy, the time of application of which is measured in seconds, does not recommend its use, especially in cases where other and better remedies can be employed.

Jequirity has been employed with the intention of causing absorption of trachoma follicles in the course of the inflammation excited thereby.

Hawley[19] of Chicago reports four cases with brilliant results in the one and not so good in others. Jequirity has been known to cause loss of eyesight, and its employment is not considered justifiable.

Expression with roller-forceps, followed by the application of astringents, enjoys a great and deserved reputation in the treatment of trachoma. This method should never be employed while the eye is acutely inflamed. The best results are obtained in cases after subsidence of acute inflammation, with scant secretion, and in which the follicles are large, superficial, and soft. In firm, resistent conjunctivæ it may be necessary

to scarify before expressing. The operation is simple and may be done under local anesthesia. The greatest gentleness commensurate with thorough evacuation of follicles must be employed, avoiding needless laceration of the conjunctiva, to prevent scarring. Great care must be exercised to search out and express every follicle, else re-infection may take place. Any of the various forceps devised for this purpose may be used.

The after-treatment consists in the local application of cold to allay inflammation and an occasional eversion of the lid to prevent adhesion of folds of the conjunctiva with the formation of pockets and symblepharon. Subsequently, reaction may be excited by use of the copper stick. Expression is the operation, *par excellence*, in children.

Excision, as devised by Heisrath[20], modified by Kuhnt[21], and practised in this country by Wooton[22], and others, bids fair to become the ideal treatment in certain selected cases of trachoma. The operation is described by Crigler, in his most excellent article on trachoma, appearing in the *Journal of the American Medical Association*, March 30, 1912.

According to Boldt[21], simple excision of the fornices is indicated in trachoma confined to the fornices: (1) when other methods have failed, or on recurrence; (2) when the tarsus or bulbar conjunctiva is invaded; (3) in corneal complications; (4) in individuals who come from a trachomatous horde and have to return to it again.

The conjunctivotarsal excision is indicated: "(1) in all chronic forms and those in which there is infiltration and thickening of the tarsus, with or without corneal involvement; (2) in extensive chronic trachoma of the fornices and tarsi, independently of actual changes in the tarsus, if the cornea is already involved or threatens to become so; (3) in gelatinous trachoma, even when confined to the fornices, if the convex edge of the tarsus shows typical thickening; (4) even in cured trachoma of the fornices, if the palpebral conjunctiva and tarsus are gelatinous or threaten to become so."

The operation is contra-indicated in early cases without corneal complications, and in other cases with threatening zerosis.

In Germany the advocates of the excision method of treating trachoma are enthusiastic and increasing in number. Unfortunately, the writer is not in position to express an opinion based on personal observation. It is claimed this method abbreviates the disease to a few weeks; that there are no bad after-effects; that the lids move normally; and that corneal complications are avoided.

Due attention must also be paid to any complicating dyscrasia or debilitated state of health, and every effort made to improve the sufferer's general condition when such measures are indicated.

The treatment of pannus requires separate consideration. Prophylaxis is better than cure. The earlier a case is seen and placed under proper treatment, the less liable the pannus is to intervene. As stated above, when pannus threatens, excision is indicated, according to German authorities. Cases of pannus that do not respond readily to astringents have been treated surgically, and good results have been reported. Cases in which there is considerable swelling and thickening of the conjunctiva may be relieved by an external canthoplasty.

In other cases a portion of the conjunctiva next to the corneal margin is excised, even to the whole extent of the corneal margin if the pannus involves the whole cornea. Simple incision will put an end to the vascular infiltration in mild cases.

Goldzicher[23] claims good results in pannus from the inoculation of secretion taken from the eyes of infants suffering with gonorrheal ophthalmia. This certainly seems a dangerous practice, in view of the destructive effect of gonorrheal virus on the cornea. It is also to be hoped, from a public health standpoint, that ophthalmia neonatorum is not to become so common as to admit of the general employment of the secretion in the treatment of trachoma.

Dr. Smith's cyanide of mercury injections have been referred to already.

In advanced trachoma, pannus may be treated by massage, not only with beneficial effect on the pannus directly, but also by hastening absorption of lingering infiltration in the palpebral conjunctiva. In late pannus, Hornback[24] advises stretching of the lids, which is accomplished by introducing the tip of the finger beneath the lid, of a cocainized eye, and making firm traction in the direction of the outer canthus to avoid wounding the canaliculi. He then applies the selected medicament by means of a stiff applicator wound tightly with absorbent cotton, and introduced beneath the lid. By this method he claims to employ dilatation, friction, massage, and medication in one maneuver.

An entropion operation, in conjunction with an external canthoplasty, is demanded when the

cornea is kept in a condition of constant irritation from trichiasis.

PROPHYLAXIS OF TRACHOMA

The best treatment of trachoma is prophylaxis. The study of prophylactic measures is of importance to every community in which trachoma is prevalent.

The cosmopolitan population of Minnesota, in connection with conditions revealed by a survey recently made by the writer in co-operation with, and at the instigation of, the State Board of Health, renders consideration of the prophylaxis of trachoma of prime importance to the public health authorities of the state.

In May of this year, in co-operation with Dr. H. W. Hill, Director of the Epidemiological, Division of the State Board of Health, a preliminary survey was made of portions of the White Earth and Leech Lake Indian Reservations for determination of the reported prevalence of trachoma among the Indian population.

At Pine Point Sub-Agency, White Earth Reservation, an examination of about one-third the total estimated population of this district revealed 31.4 per cent of trachoma in the whole population. A detailed canvass, impracticable at the time, would undoubtedly have shown 50 per cent or more of infection in this district.

An examination of four boarding-schools and one day-school, White Earth Reservation, and one boarding-school and day-school, Leech Lake Reservation, a total of 413 Indian pupils, revealed 127 cases of trachoma, or 30.7 per cent, indicative of a general infection of the population. In addition 1,428 public school children, in Mahnomen, Becker, Hubbard, and Cass counties, at points contiguous to the reservations, were examined, only three cases of trachoma were found, and these in children of mixed blood.

The facts established by this survey are: (1) the Indian population is a threatening focus of trachoma infection; (2) the disease has not spread from them to the contiguous white population; (3) the mixed blood is the agent by whom infection may be spread to the white population; (4) the necessity for preventive measures.

A like survey of portions of the mining population and of public-school children of the Mesaba Range was made by the writer, assisted by Dr. A. J. Chesley, of the State Board of Health. In all, 1,319 miners in eight districts were examined, with 34 cases of trachoma, or 2.6 per cent, found.

A significant fact is, that trachoma was found among the foreign-born miners in every district examined. Also 6,861 school-children of these districts were examined, and nine cases of trachoma discovered among them. The facts established are these:

1. The mining population of the Mesaba Range is infected.
2. The disease has, to a limited extent, gained entrance to the public schools.
3. Preventive measures are to be enforced to avoid further spread.

Consideration of prophylactic measures should be from the standpoint: (1) of the general government; (2) of the State, as represented by its Board of Health; (3) of the community, and (4) of the individual.

The government is daily enforcing one of the strongest prophylactic measures for the prevention of the spread of trachoma through its examination of arriving aliens for trachoma by officers of the Public Health Service, thus preventing the introduction of new cases to the country.

Prior to 1897 but few cases of trachoma were deported on arrival, permitting the establishment of infected foci in those states and communities most affected by immigration.

Thousands of cases of trachoma are now awaiting removal of restrictions, in order to reach this country. Many hundred seek admission in spite of such restrictions, of whom some gain entry in an illegal manner. The lowered percentage of trachoma in our large eastern cities, which receive the bulk of immigration, is an eloquent tribute to the thoroughness of this inspection and to the value of prophylactic measures.

The Indian situation is in the hands of the general government, through the agency of the Indian Medical Service. Every Indian is a prospective citizen of the state under the provisions of the Clapp Act, thus complicating the situation

The State is protected from this source in proportion to the thoroughness with which the disease is combated in the Indian population. The present situation cannot be handled successfully so long as the Indians are scattered throughout the reservations, living in isolated dwellings. Trachoma requires constant supervision, and until the Indians are gathered into small villages under police control and medical supervision, with proper hospital facilities, any effort to stamp out the disease among them is doomed to failure. The modern Indian, in his ignorance, with his superstitions and his insanitary mode of life, fur-

nishes a fertile soil for the propagation of trachoma.

On the part of the State, trachoma should be declared a reportable disease, to the end that every case may receive due and appropriate treatment. It should also be made conditionally quarantinable, in order that any case, through inability or disinclination, failing to abide by the rules and regulations controlling such, as prescribed by the State Board of Health, may be apprehended and treated, at State expense, until in condition to be released without danger to others.

Every community or municipality should provide for a proper medical inspection of schools, the same to be under the general supervision of the State Board of Health, acting through the local Board.

Every case of trachoma should be excluded from school for such time as may be determined by medical inspection, when it may be readmitted without danger to others. In fact, in trachomatous communities, every acutely inflamed eye should be regarded with grave suspicion and excluded until the true nature of the case is determined, or the inflammation has subsided.

An examination of school-children will furnish a true index to the trachoma situation of any community. For that reason the writer cannot recommend too strongly the establishment of such inspection, especially in territory contiguous to Indian reservations and in the mining districts.

All school lavatories should be provided with individual or paper towels. Running water must be used for washing the hands, a faucet controlled by foot-pressure being used for the purpose.

The exclusion of trachoma from the schools will not protect the community, nor should responsibility end here. The child should be followed to its home, the nature and danger of the disease carefully explained to the family, and methods of individual prophylaxis carefully taught.

It therefore becomes necessary to establish a system of school nursing in connection with the medical inspection. It should be the duty of such nurse or nurses, to visit the houses of trachoma cases daily, to apply the necessary treatment, under the physician's direction, of course, and to see that proper precautions are observed.

A final word regarding the responsibility of the great industrial institutions to the community in which they are located: Invariably such institutions employ large numbers of foreign laborers. These companies owe it to themselves and to the community to cause an examination to be made of every applicant for employment, rejecting all cases of trachoma. This practice, if universal, would put an end to importation of trachoma. The disease cannot enter this country except in an illegal manner. If these people knew beforehand that they could not secure employment, it would do more to discourage the attempt to enter the country than any other measure.

The State Board of Health should be empowered, by special act if necessary, to make such inspections and prescribe such regulations as may be necessary to control the present foci of infection in the mining population of the State.

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OPERATIONS FOR UTERINE PROLAPSE COMPARED*

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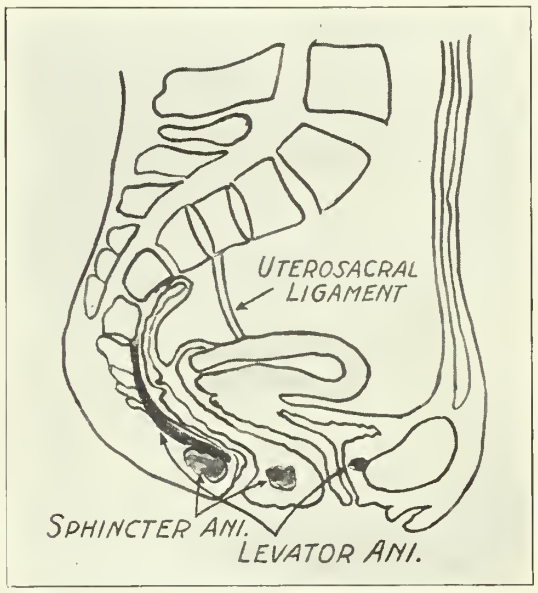
MINNEAPOLIS

Taking the normal nullipara as our pattern, we find the bottom of the pelvic bowl closed by a good solid structure of bone, muscle, fascia, and ligaments. The levator ani muscle is important, but it by no means furnishes the entire strength of this pelvic floor. We must take into consideration the anterior edge of the gluteus maximus, with the cushion of fat above, the sacrosciatic ligaments, the coccygeal ligament, the sphincter ani, the transverse perineal muscles, the strong bisischiatic fibrous junction, the sphincter vaginæ, and the accompanying fasciæ. The rectum, lying upon this firm floor, is normally for the most part of the time empty, with a varying distention of feces and gas. Upon the rectum and levator ani lies the vagina, with its walls applied to each other; upon this the bladder and uterus. The super-imposed strata lie upon the strong pelvic floor, making a resilient closure of the well formed by the pelvic bones. The three openings which have to resist the downward pressure of the abdominal contents, are closed in a mechanically correct manner; namely, by a lapping of tissues. In none of these openings does the pressure come directly upon the aperture, like the opening in a funnel, but indirectly, as if the tube of a rubber funnel were bent at an acute angle. It must be remembered that under ordinary circumstances the urethra, vagina, and rectum have their surfaces applied to each other, and are not distended as we see them represented in our anatomical plates.

Any distention of the bladder, vagina, and rectum must take place from below upwards, displacing the bowels instead of the pelvic floor.

The bladder is constantly changing its shape, and consequently changing the axis of the uterus. The normal axis of the uterus, vagina, and rectum, are somewhat different from what we see illustrated in our text-books. With the rectum and bladder empty, the angle of the vaginal axis, with a line drawn anteroposteriorily to the body, is from thirty-five to forty-seven degrees. The os uteri being only one-half to three-fourths of an inch from the coccyx, and the fundus lying back of the middle of the symphysis pubis, or even below, the angle of the uterus with the vagina is much more acute than generally illustrated.

Direct pressure therefore comes ultimately upon the pelvic floor and not in the line of the openings themselves, having rather the effect of compressing and making more firm the tissues between the uterus and levator ani. Therefore this admirable position of the uterus is its own best defense against misplacement. Uterine prolapse occurs only when the organ falls backward far enough to assume the axis of the vagina; in other words, it must turn a corner. Then comes



a strain upon tissues, as seen above, that are not intended to act as supports.

An operation, to conform to the normal anatomy, must have for its basis the maintenance of the uterus in its normal axis.

The pelvic fascia in its various extensions is not a constant support of the pelvic viscera. It limits muscular relaxation just as the fascia of the abdominal wall limits its relaxation; in other words, the pelvic organs have quite a free motion, but that motion is limited by the pelvic fascia. The pelvic peritoneum assists the fascia in this duty and helps to maintain the relative position of the organs. This is notably true of the lateral folds, which prevent excessive lateral motion, and the uterosacral folds, which tend to prevent a too great movement of the cervix for-

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ward. The round ligaments are of no value whatever as supports to the non-pregnant uterus. They are always lax when the uterus is in normal position, and not always tense when the uterus is retroflexed.

The following observations have a bearing upon our subject:

If one seizes the cervix with a vulsellum and carries it backward in the axis of the vagina, the cystocele and rectocele disappear.

The neck of the uterus lies in a sort of cup, which is deepened by a slight increase of muscular tissue in the anterior and posterior vaginal walls in front of the uterus. This posterior vaginal sphincter, as I have called it, not only performs physiological functions, but tends to keep the neck of the uterus from turning forward.

In comparing the various operations for uterine prolapse, I assume that we as surgeons demand physiological as well as mechanical results, that we look with distrust upon all reparative operations which do not conform to normal anatomy, and that we also object to needless mutilation.

The following is a list of operations which have been more or less in vogue for the cure of uterine prolapse, classified according to their periods of development.

First Period:

1. Repair of perineum.
2. Repair of perineum with anterior colporrhaphy.
3. Repair of perineum with anterior colporrhaphy and amputation of cervix.

These were shortly dropped because they did not go far enough. The support was inadequate and the prolapse soon returned.

Second Period:

4. Vaginal repair and shortening of the round ligament.

By vaginal repair we mean a narrowing of both the anterior and posterior walls of the vagina as far back as to the fornices, including the restoration of the proper relations of the levator ani and perineum.

5. Vaginal repair and abdominal fixation.
6. Vaginal repair and vaginal hysterectomy.
7. Vaginal repair and abdominal hysterectomy.
8. Pryor's vaginal operation.

Vaginal repair and shortening the round ligaments, including the methods of Alexander, Todd-Gilliam, Webster, and many others, proved ineffective because the cervix was not held backward, and, swinging forward, soon pulled upon and stretched out the round ligaments. If done, the preference should be given to the Webster method of carrying the round ligaments through the broad ligaments and fastening behind the fundus uteri.

Vaginal repair with abdominal fixation has the same objection and, in addition, danger to childbearing.

Vaginal repair with vaginal or abdominal hysterectomy must be confined to women past childbearing, or, if done during that period, it carries the penalty of rendering them sterile. Recurrence of the vaginal hernia is common.

Pryor's vaginal operation, consisting of a wide incision into Douglas' sac, with long-continued gauze packing, is uncertain in result, unsatisfactory to the patient, and handicapped with the necessity of deferring the vaginal repair to a later date.

Third Period:

9. Vaginal repair with shortening the uterosacral ligaments *per vaginam.*
10. Wertheim-Watkins' operation and modifications.
11. Vaginal repair and plicating the uterosacral and anterior broad ligaments *per abdomen.*

Vaginal repair with shortening the uterosacral ligaments *per vaginam* is exceedingly difficult and precludes other abdominal work very often necessary. It must be said, however, that the results are fairly good in the few cases that the writer has operated upon in this way.

The Wertheim operation, the essential part of which is the fixing of the uterus between the bladder and the anterior vaginal wall, is anatomically incorrect, and while the reports have been generally favorable in the short time since it was devised, the necessary sterilization, if done during the child-bearing period, is a serious objection. The changed relation of the ureters, the unknown ultimate results upon the bladder, and the deplorable condition in case of cancer, even after the menopause, have kept the writer from adopting the method. Is it not like tucking a movable kidney behind the transversalis?

Vaginal repair, with plicating of the uterosacral and anterior broad ligaments *per abdomen,* has been adopted by the writer in thirty-five cases in the last four years with no known failure. After a thorough repair of the vagina, as indicated above, and with as little shortening of the cervix as conditions will allow, an abdomi-

nal incision is made and other work done in the abdomen as indicated. The uterosacral ligaments are then plicated. A long straight forceps in the hands of the assistant catches the ligament of one side near its middle. A needle armed with chromic gut is then passed deeply enough to get beyond the mere peritoneum and includes the muscle fibers and connective tissue beneath. It is then brought out and carried through in the opposite direction as far from the uterus as necessary to bring the uterine ends of the ligament about an inch from the sacrum, and tied. A second suture folds over the resulting duplication and attaches it to the uterus. The opposite ligament is treated in the same way. The round ligament on one side is now picked up by the forceps, and the meso beneath it sutured and folded in the same way as the uterosacral ligaments, the last dip of the needle going under the upper fork of the round ligament, where it is attached to the uterus. The remainder of the round ligament is not included in the suture and remains entirely free. The other anterior broad ligament is treated in the same way. In case there is much tension on the uterosacral ligaments, a narrow Albert Smith pessary is worn for a couple of months. This operation is applicable either before or after the menopause, is anatomically correct, does not exclude other necessary abdominal operations, the only mutilation is the abdominal incision, it is free from the dragging pains complained of after fixation, and, in the experience of the writer, affords a permanent cure.

DISCUSSION

Dr. W. H. Magie (Duluth): I did not know that I was to discuss the very excellent paper of Dr. Abbott until just a few minutes ago. I must say, however, that Dr. Abbott's pictures showing the relative positions of the pelvic organs are quite different from my understanding of their normal position. I would like in this connection to speak of two cases of extreme uterine prolapsus that I have operated on within the past year.

The first case came into my hands for treatment about one year ago. She was sixty-odd years old. The uterus and vagina were completely prolapsed, and hung, in the form of a large ulcerated tumor, between the thighs. The operation consisted in opening the abdomen by a median incision, bringing the uterus up, cutting and ligating the broad ligaments down to the cervix on each side close to the uterus, splitting the uterine body vertically down to the cervix, and removing the uterine mucosa down to the cervix, together with some portion of the uterine wall, as we do not need all of the uterus.

This operation I heard Dr. J. B. Murphy describe at his Chicago clinic in the spring of 1911, and so far I followed his description of the operation. Murphy then recommended bringing the two halves through the abdominal incision, lapping them over the sheaths of the recti muscles in opposite directions, and securing them by stitching them to the recti sheaths. I did not follow this plan, but instead I made an incision about one inch from the median incision through the rectus sheath muscle and peritoneum on each side close down to their pubic insertion. These incisions are made just large enough to allow each half of the uterus to pass through without choking the circulation in them; then each half is brought through with forceps and held, while the median incision is closed with six weeks catgut, all but the skin and fat. The two halves of the uterus are now brought across the abdomen and one overlapped, the others are stitched together. The only thing left is to finish closing the abdominal incision. This anchors the pelvic floor to the pubes, furnishing support to the bladder at the same time.

The second case had been operated by another surgeon of this city, one year ago this month, by amputation of the cervix and ventral suspension. It was a failure, as the uterus and vagina came out again within two weeks after she left the bed. This case was one of the worst types. The uterus and vagina, with cystocele, were completely prolapsed and ulcerated. The same operation was done in this case. The patient has made a good recovery and the results are satisfactory.

Dr. Arthur A. Law (Minneapolis): Dr. Abbott's striking diagram illustrative of the mechanics which enter into prolapse of the uterus, is timely and of great interest. It seems to me many surgeons lose sight of these mechanics and pay no heed to the various factors which make uterine prolapse a pathologic entity; for how else would we have the large number of operations devised for the relief of this condition?

Dr. Abbott's operative procedure for the relief of uterine prolapse in selective cases certainly commends itself. His assertion that the intra-abdominal shortening of the uterosacral ligaments with some method of shortening the round ligaments (preferably the Baldy-Webster) holds the uterus in its normal horizontal plane, the intra-abdominal pressure helping to keep it there, is in accord with his description of the mechanism which maintains the uterus in the normal position. I believe, however, his procedure is applicable to only a selected class of cases; certainly not all cases of uterine prolapse are susceptible of relief by this procedure. In our University clinic we are accustomed to group the cases of uterine prolapse into four general classes:

1. Those extreme cases where the heavy large uterus is entirely without the vulva and hangs between the patient's thighs. The mucous membrane of the uterus may be eroded or ulcerated as may the integument of the thighs. In this class of cases a more radical procedure, like vaginal hysterectomy with stitching together of the round and broad ligaments underneath the prolapsed bladder, hammocking it, as it were, is indicated, along with the repair of the pelvic floor, if needed.

2. The second class of cases, where the prolapse is not so extreme, calls for one of the operations where the uterus is lifted up and buried in the abdominal wall, either splitting the uterus with dissection out of the endometrium and burying the split segments on either side of the wound under the aponeurosis (the so-called Murphy method mentioned by Dr. Magie), or the Kocher

operation, where the uterine body is girdled with peritoneum at about the level of the internal os and the fundus buried in the wound just beneath the skin.

Even the operation described by Eastman, where the transfixation pin is used and the uterine fundus is left without the wound entirely, not unlike the treatment of the stump of the uterus in the early days of abdominal hysterectomy when the transfixion pins and ecraseur were used, may be used. This latter operation has the disadvantage of a prolonged convalescence to permit of cicatrization of the fundus.

In all these transplantation cases the patient of course must be sterilized if still in the child-bearing age.

3. In the third class of cases, where the uterus is not especially large or the prolapse extreme, methods of retroperitoneal shortening of the round ligaments like Montgomery's, Simpson's, or the modified Gilliam, or the intra-abdominal shortening of these ligaments, as Body's, Webster's, or Coffey's operation, will suffice. Here is where Dr. Abbott's procedure would seem to be especially indicated.

4. The fourth class of cases are those cases complicated by distressing cystitis, which so frequently attend these prolapses where the bladder is dragged down, sacculated, and cannot empty itself, and we have the foul residual urine. The uterine transplantation into the abdominal wall cares for the more aggravated of this class, while the Wertheim-Watkins' operation will relieve those of less degree. Here, again, must the tubes be resected if the woman is not beyond the child-bearing age.

I am impressed with Dr. Abbott's findings as to the normal uterine position as demonstrated by his chart, the result of many measurements and much study, and I congratulate him upon his operation, which is valuable and distinctly clever in its conception.

Dr. R. E. Farr (Minneapolis): I feel very grateful to Dr. Abbott for having presented this paper. He has graphically illustrated the position which the uterus assumes in the pelvis, and has shown that, with the uterus in proper position, intra-abdominal pressure tends to keep it there.

I have tried most of these suspension operations recommended, and have discarded them, one by one, in an effort to make the operation as simple and free from trauma as possible. After building up the supports from below, I have, for some time past, used the plication method (through the transverse incision, of course), as recommended by Drs. Coffey, Abbott, and others; and in doing this I have made use of a procedure recommended by Murphy, who calls attention to the fact that in these cases the round ligaments usually arise from the uterus at points much nearer to the cervix than is normal. He recommends the attachment of the round ligaments to the highest point on the fundus.

The operation of Gilliam, the Webster-Baldy operation, and other modifications cause more trauma than does this procedure, and they are no more effective. To this I have added the procedure recommended by Dr. Abbott of shortening the uterosacral ligaments. I believe it is important to avoid injury to these tissues. I do not even place a forceps upon the round ligaments, but usually transfix them with the needle. I have not found it necessary to do the Eastman or Murphy operation of attaching the fundus into the abdominal incision, as I have been able to cure every case of complete prolapsus that I have operated on by the simpler methods, and until I have a failure I shall adhere to my present method. Dr. Eastman says anything is justifiable with women in this condition, and I heartily agree with him.

As I have said, thus far I have found such a radical procedure unnecessary.

Dr. A. E. Benjamin (Minneapolis): The subject treated in Dr. Abbott's paper is one still very interesting, and it will bear much discussion.

The drawing presented by Dr. Abbott shows very plainly the relative position of the pelvic organs. I believe, however, that the uterus would assume a position with a relative greater distance from the coccyx with the patient in the erect posture.

We should not confuse the treatment of simple retrodisplacement with procidentia in the discussion of the paper, for there are a great many more important factors to be considered in the treatment of the latter condition than are associated with simple retrodisplacement.

There is very often a relaxation of the abdominal wall and a general visceroptosis, the super-imposed organs bearing down upon the uterus, pushing it lower. In many instances, we have a prolapse of the stomach, kidneys, liver, spleen, and intestines, and no operation will be absolutely satisfactory in such cases unless we consider the forces which maintain these various organs in position. We must thoroughly understand the principles which govern the normal position of the uterus and be able by the operation which we perform to properly connect all the forces essential to the normal position of the uterus and other pelvic organs.

We all agree that there should be a repair of a lacerated cervix, thereby favoring involution and a lightening of the uterus. There must be a force acting counter to the intra-abdominal pressure, which greatly assists in maintaining the uterus in a normal position, and therefore the perineum must be intact.

I have been very well satisfied with a modified Gilliam operation, by which we can draw the round ligaments through the separated muscle fibers opposite the internal abdominal ring, and bring the round ligament and broad ligament covered with the peritoneum out through this opening spread over the fascia and there stitched. By this method we can pull up the anterior or posterior fold of the broad ligament and elevate the bladder, as well as the ovaries and tubes.

It is not a mutilating operation and has the advantage that there are no sutures within the abdomen to provoke adhesions, as I believe the fewer unnecessary sutures we have within the abdomen, the less subsequent trouble occurs. With a toning up of the abdominal muscles and a lessening of the intra-abdominal tension, this operation proves very satisfactory in all cases where it is indicated.

In some cases of uterine prolapse, it is necessary to do an hysterectomy, especially where there is a disease of the cervix and enlargement of the uterus or degeneration of the mucosa. When an hysterectomy is done in such a case, the round and broad ligaments are brought down and stitched to the tissue below the bladder and upper vagina. In a number of my cases I have

dissected the mucosa from the upper vaginal tract and brought the denuded walls together, closing the upper portion of the vaginal tract. This makes a perfect support for the bladder and pelvic organs.

The Watkin's operation should be chosen in women who have passed the menopause and where there are no indications for a laparotomy present. In such cases it is very satisfactory.

Dr. A. W. Abbott (closing): The important thing I wanted to speak of in connection with this picture is the fact that the uterus has got to turn a corner before it gets out. The object of the operation is to keep it from turning the corner, so that it can not get out. When a woman comes with an extreme case of prolapse, where there are deep ulcers on the surface, we put the uterus back in place. We use a pessary, an air-bag, or any kind of support for a while to keep it up in place until the excoriation has healed. It does not take over a few days to do it, then we are ready to go on with the operation. There is great objection to any operation which mutilates a woman to the extent of sterilizing her, and it is inapplicable to a woman in the child-bearing period if there is any operation that is better.

In regard to the cases where there is sacculation of the bladder and rectocele: Remember I stated in the paper, if you put a vulsellum on the cervix and push it back, you do not have any sacculation of the bladder, for it disappears. If you carry the cervix back to the normal position, you do not have any rectocele. That is not all of it. There is redundancy of tissue in the vagina, and that is met by, not only removing enough of the mucosa of the vagina, but narrowing the vagina, going through the mucosa and getting down to the connective tissue, bringing that up and making the vagina as small as it should be, going clear back to the fornices. Just a little trimming around outside does not do any good. Sims depended on that forty years ago, and in some cases that alone proved sufficient, but of course in the majority it was not enough, and the condition returned. The round ligament amounts to nothing whatever in the non-pregnant woman. You never find it tense in any case when you open the abdomen, the uterus being in the normal position, and even when the uterus is retroverted there is often much slack. It is no support to the non-pregnant uterus. In the pregnant uterus it is very important.

As to the uterosacral ligaments: They are inconstant as to the exact situation, but they almost always begin at this point (indicating) on the uterus back of the internal os, and they extend back to a variable distance between the third and fourth sacral segments, sometimes a little above or below. This has a tendency to lift not only the uterus back but the cervix up, and when the strain comes the tendency is to raise the cervix as well as to hold it backward.

Some one asked in reference to the position of the patient during these measurements. I made them both standing and lying down. In a normal woman, there is not change enough so that one can determine the difference. I have already said that when these cavities are empty all the tissues flatten down onto the floor of the pelvis.

REGENERATION OF THE TENDONS*

M. S. Henderson, M. B. (Tor.)
Junior Surgeon to St. Mary's Hospital, Mayo Clinic
ROCHESTER, MINNESOTA.

It is my purpose to present a brief report of the results following experiments made on a series of dogs with a view to demonstrating the regenerative power of the tendons. A very brief review of the literature on the subject will be made.

Interest in the surgery of tendons was probably first keenly awakened when, in 1880, Nicolodoni sutured the tendon of a functionating muscle to the tendon of a paralyzed muscle. This in itself was not successful, due to the stretching of the paralyzed tendon, but it encouraged other observers to take up the work along these lines.

Drobnik and Lange developed the periosteal insertion of the transplanted tendon, now considered so essential to a functional result, and in 1902 Lange reported a case two and one-half years after operation. In this patient (a male) the quadriceps tendon had been lengthened, a functionating tendon resulting.

Borst, Seggle, Rydygier, and Vulpius are among those who have investigated this subject. In this country James Warren Sever has given us several excellent papers. He reports a series of experiments on cats and demonstrates the practicability of bridging defects of the tendons with silk suture and has shown the influence the sheath has on regeneration of the tendon. F. L. Richardson, in his paper on "Tendon Suture," gives a concise description of the process of the repair of tendons. In a recent article by Lewis and Davis the question of direct transplantation of the tendon was discussed, and they report having transplanted pieces of the tendo Achillis one and one-fourth to one and one-half inches long from one dog to fill in a defect in the tendon of another dog. Uniformly good results were obtained by them, which establishes the possibility of this direct transplantation.

*Read before the American Orthopedic Association, Atlantic City, June, 1912.

Tendon, in common with other forms of connective tissue, such as fascia, sclera, ligaments, cartilage, bone, and dentine, arises from mesoblastic tissue. It is composed of bundles of white fibrous tissue containing few cells and is invested with a layer of loose connective tissue called the peritendineum, which is quite freely supplied with blood-vessels and nerves. This peritendineum dips in between the bundles of white fibrous tissue and carries with it the nerve- and blood-supply to the body of the tendon. It is claimed that the regenerative power of the tendon comes from this peritendineum and the septa which it sends between the bundles of fibrous tissue into the interior of the tendon. A

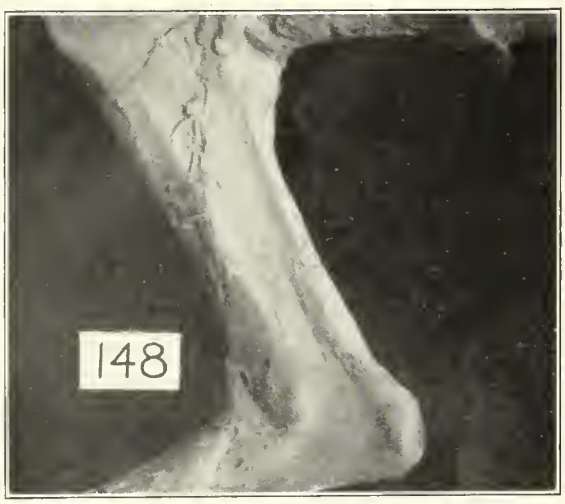


Fig. 1. Photograph of specimen taken from dog No. 148; one and one-half inches of tendon resected and sheath left. Complete anatomic and functional restoration at the end of 30 days. Note the difference between this picture and that of dog No. 146, where the sheath was not left.

simile is drawn likening it to the periosteum and the endosteum of the bone.

In the series herein reported the work was done on the tendo Achillis. Large dogs were used for the reason that in the larger animals a sheath was demonstrable and, with its peritendineal structures, was of sufficient strength to allow suturing, whereas in the smaller animals it was found difficult to demonstrate a sheath of sufficient strength to allow of manipulation. The tendo Achillis in the dog consists of three tendons. Each has a separate sheath, and the whole is invested in a common sheath and peritendineum.

The suture material used to bridge the defects was black linen, black for the reason that it is more easily traced when the dissections are made later. Two strands were the most used, the purpose being to provide a scaffolding on which repair could take place. In the dogs in which the sheath was saved, it was always closed with plain continuous catgut sutures. The skin was sutured with plain catgut.

At the end of the operation a plaster-of-paris cast was applied from the toes to the groin. This was removed in two weeks, after which time the dogs were allowed to run at will in their pens.

These dogs were all operated upon under morphine followed by Thompson's fluid, which produced very satisfactory and complete anesthesia.

Fig. 2. Photograph of specimen taken from dog No. 146. Removal of one and one-fourth inches of tendon and sheath, nothing was used to bridge the defect. A poor anatomic, with no functional, restoration at the end of six months. Note the difference between the photograph of this and dog Nos. 144 and 142.

The dogs were killed with chloroform at the end of six months; the legs were amputated and macroscopic and microscopic examination made. The microscopic examinations were not particularly enlightening. MacCarty made a study of the specimens with me, and we attempted to make a distinct differentiation between true tendon and connective tissue. This was possible only in a few well-marked instances. (Fig. 6-7.) Macroscopically, true tendon appears as a white glistening cord. Ordinary connective tissue does not possess this glistening appearance. These bundles could be traced in the functionating regenerated tendons, whereas they were absent where there was an anatomic but no functional restoration. (Fig. 5.) In none of the animals in which the sheath

was removed was there a well-marked freely movable sheath, as there is normally. In those in which the sheath was not removed, there was a nearer approach to the normal, though even here the sheath was more or less adherent. In the dog in which no linen was inserted to bridge the defect and the sheath was carefully sutured over the space with catgut, there was an anatomic restoration more nearly normal than in those in which the linen was inserted. The linen seemed to act as a foreign body, causing great proliferation, evidenced grossly by the increased size of the tendon.

Fig. 3. Photograph of specimen taken from dog No. 144. Removal of one and one-half inches of tendon, leaving the sheath. Linen used to bridge the defect. There was complete anatomic and functional restoration at the end of thirty days. Note the thickened "new tendon." Normal use in about thirty days after operation.

In one dog linen was inserted high up on the tendon and carried down the outside to be inserted into the periosteum. There was great proliferation macroscopically, and microscopically many giant cells were present. In this instance there was apparently an unsuccessful attempt to absorb the linen.

Linen was used in three of the animals. In two the linen was used to bridge a defect caused by the removal of a piece of tendon. In the first dog the sheath was left and sutured over the two strands of bridging linen. In the second the linen was left uncovered by the sheath, the sheath and peritendineal structures being removed along with the piece of tendon. In both there was complete restoration of function. On dissecting the specimens only knots of the linen were found. On such scant data, however, we do not wish to state that the linen was absorbed. We have other experiments under way to prove this point. The third dog in which linen was used is the one heretofore described in which there was great proliferation and numerous giant cells.

Eight dogs were operated upon in this series, but only five of them could be used for observation. One died before the experiment could be of value. In one the wound became infected. The third was eliminated because no definite record had been kept of the condition.

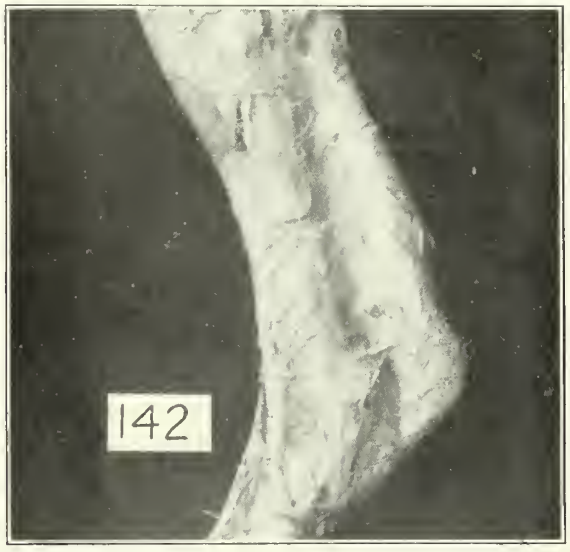


Fig. 4. Photograph of specimen taken from dog No. 142. Removal of one and one-half inches of tendon, with the sheath, linen was used to bridge the defect. Complete anatomic and functional restoration at the end of thirty days. Cast removed in two weeks, and dog gradually began to use the leg until one month after operation; used practically to normal extent. Note the regenerated portion which shows up thicker than the old portion.

Dog No. 148 (see photographs of specimen, Fig. 1). One and one-half inches of tendon was resected, and the sheath left. Nothing was used to bridge the defect except that the sheath was closed with continuous plain catgut suture. Complete anatomical and functional restoration.

Dog No. 146 (see photographs of specimen, Fig. 2). Removal of one and one-half inches of tendon and sheath. Nothing was used to bridge the defect. There was a filling-in to restore the

anatomic defect, but this pseudo-tendon never functionated.

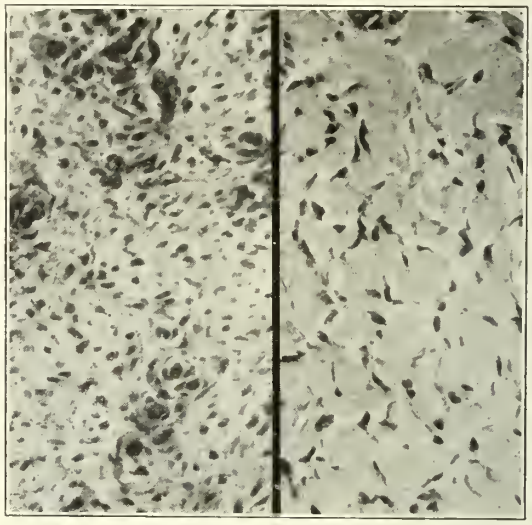
Dog No. 144 (see photograph of specimen, Fig. 3). Removal of one and one-half inches of tendon leaving the sheath. The defect was bridged with two strands of linen, and the sheath

Fig. 5. Photograph of long section of specimens. Note that 144 and 148 show glistening fibers running through the mass of fibrous tissue; and that 146 shows anatomical restoration, but not functional. Note the dull appearance to the fibrous tissue filling the gap between the ends of tendon.

sutured over the space with plain catgut. There was anatomical and functional restoration.

Dog No. 142 (see photograph of specimen, Fig. 4). Removal of one and one-half inches of tendon with the sheath. The defect was bridged with two strands of linen. There was anatomical and functional restoration.

Dog No. 147. Piece of linen put through the tendon high up and carried down to a periosteal insertion in the heel. Great proliferation occurred about the linen, showing, microscopically, many giant cells, the result of the chronic irritation produced by a foreign body.



Figs. 6 and 7. Microphotograph for comparison. Fig. 6 shows ordinary scar tissue, the free blood-supply, and irregular arrangement of the cells. Fig. 7 shows true tendon. Note in the latter the more regular arrangement of cells and the absence of blood-vessels.

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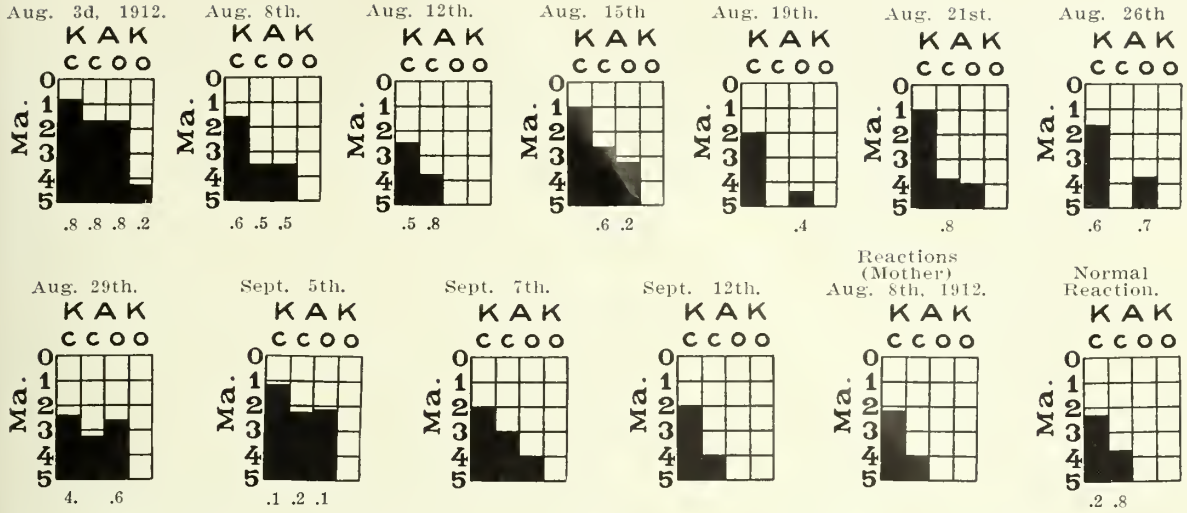
HISTORY OF A CASE OF SPASMOPHILIA, WITH "REPEATED ABSENCES"

Julius Parker Sedgwick, M. D.
MINNEAPOLIS, MINN.

S. S. was seen first August 3d, 1912. She was seven years of age and weighed 45 pounds 3 ounces. Her father and mother are living and well. The father's mother died of tuberculosis about four years ago. They have lost no children and the mother had one miscarriage ten years ago. This was a full-term child and the birth was normal. She was not put to the breast as the nurse thought that the mother did not have enough breast milk. She was given condensed milk for two weeks and then Mellin's Food and condensed milk until she was a year and a half old. She has had no acute infections and although she lived two years in the Philippines did not contract malaria. Her father was in the habit of giving her as high as six Manhattan cocktails or whiskey drinks a day, and the mother thinks that the "spells" which she has had have followed the abuse of alcohol.

Two years ago she began to have attacks which were diagnosed as "petit mal." She usually had from one to fifty of them and has had

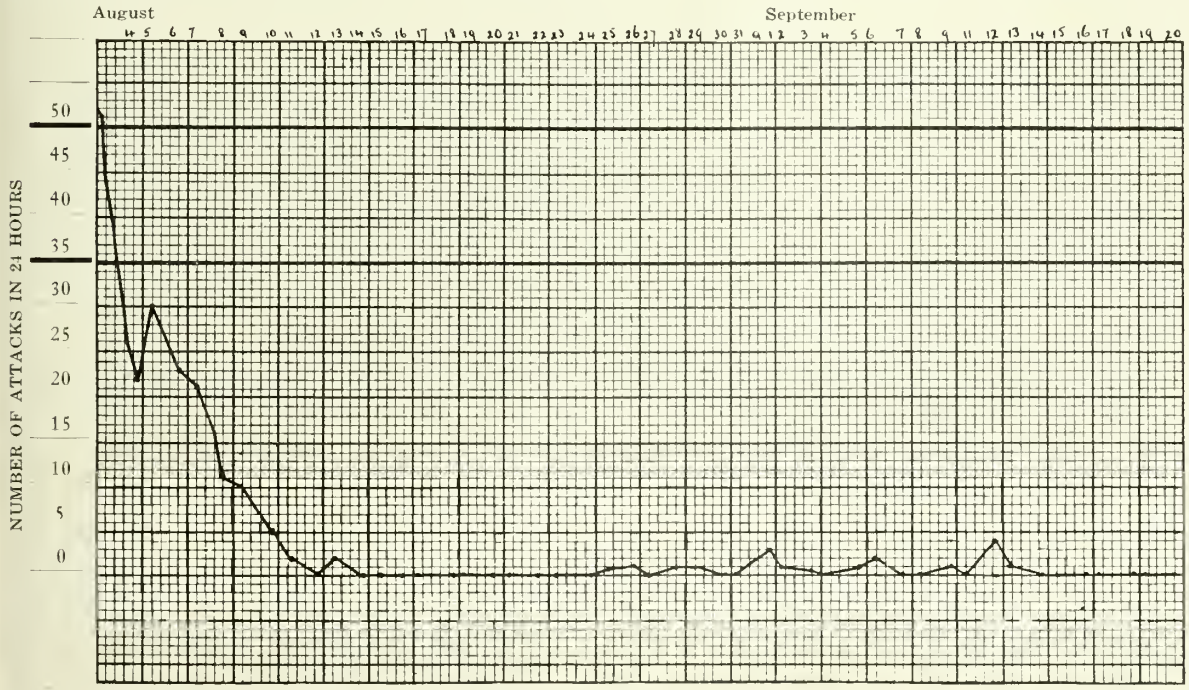


An anodal or cathodal opening contraction with a current less than five milliamperes shows spasmophilia, either latent or active.

K A K
C CO O should be interpreted as follows: 1st column, kathodal closing, second column, anodal closing, third column, anodal opening and the fourth column, kathodal opening.

as high as one hundred a day. The attacks were first noticed at the table. She would stop eating and stare off into space. During the attacks she does not answer when spoken to. The first attacks lasted only a few seconds each but at the present time they are sometimes much longer. She was examined by two very competent men who said it was epilepsy. They gave her bromides and advised country life and all the milk and eggs she could take. She was taken to the country and given the medicine prescribed. The medicine seemed to make her worse. While in the country she would sink to the ground when the attacks came on and at times had as many as one hundred "spells" a day.

The physical examination showed a fairly well-nourished, gracile child of dark complexion. She made quick movements which were not of



choreiform character. The circumference of the head was 48.8 centimeters. The pupils were equal and reacted to light. The color of the cheeks and lips was good. The urine examination was negative. The hemoglobin was eighty-seven per cent. The electrical reactions which were markedly spasmophilic are appended. On August 3d, during the examination in the office, she looked off into space and the pupils became somewhat dilated, the expression was blank and the attack lasted about ten seconds, after which she immediately became the active, alert, apparently normal child she was before. She was sitting on the edge of a table from which she did not fall and seemed to have no difficulty in keeping her position. She said nothing during the attack, although she had been talking on and off before. During the attack she seemed to notice that her dress was unbuttoned in the back although the expression was still vacant. There was no Chvostek phenomenon. The patellar reflexes were very marked. The Achilles tendon reflexes were present and marked. The lungs were everywhere normally resonant. There were no râles. Her heart was not enlarged. The cardiac sounds were normal. The posterior cervical glands were shot-like on the left side. The thyroid was palpable. The spleen was not palpable. The liver extended 1.5 cm. below the costal margin. The abdominal tension was good. The inguinal glands were not enlarged. The external genitalia were normal. Her skin was normal. Her station was excellent.

She was put on a carbohydrate diet without milk or meat and given phosphorus in cod liver oil, but no sedatives.

The decrease in the number of attacks can be readily seen from the accompanying curve extending from August 4th to September 12th, 1912. On September 12th she left Minneapolis but continued with the milk- and meat-free diet and the mother reported from St. Joseph, Missouri, on October 26th, 1912, that she was having about one attack a week and that very slight. The treatment was continued. On November 26th, 1912, she reported from Cheyenne, Wyoming, that the child had had no attacks since October 26th. The treatment was ordered continued. On December 20th, 1912, she reported from Tacoma, Washington, that the child had not had any more attacks and was doing well.

EYE-STRAIN AS AN ETIOLOGICAL FACTOR IN FUNCTIONAL DISEASES*

By J. C. Clark, M. D.

MT. VERNON, S. D.

It is with some hesitation, and with the knowledge of almost certain criticism, that I present this paper upon a subject which, as yet, has been little thought of by physicians, and rarely mentioned in text-books.

Until recently, few medical men considered that the eyes demanded any part of their attention in relieving the general ills of humanity; however, the clinical evidence of case after case of nervous functional disorders having been permanently relieved by correcting existing eye-defects, after medicinal and surgical treatment had failed to give relief, has so forcefully brought to our attention the importance of eye-strain, and the subsequent nervous exhaustion resulting therefrom, that we can no longer ignore its existence.

The principal eye-defect herein alluded to is hyperopia in its various combinations. Hyperopia, as we know, is a shortening of the antero-posterior diameter of the eyeball, and should the muscles of accommodation remain in a static condition when the hyperope is looking at a distance the light rays would not be focussed upon the retina, but the function of accommodation being brought into action by a stimulation of the third cranial nerve, the lens is increased in power, and perfect vision results. Herein lies the seat of nerve-waste. We not only have a stimulation of the ciliary muscles during accommodation, but, as this function was intended by nature for use at close range only, she supplied the ciliary muscles and the internal recti by the same nerve, hence automatic convergence takes place with accommodation; convergence for distance, however, is unnecessary, and would cause double vision, so that there must be a corresponding negative pull by the external recti supplied by the sixth cranial nerve to overcome the convergence.

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

Now, if some unit be given to nerve-supply, and the excessive amount of nerve-energy required to maintain perfect vision in the hyperope of 3 D for sixteen waking hours daily, be estimated, and the same compared with the estimated normal demands of the entire body in emmetropia, it will be found that the hyperope of 3 D requires nearly as much nerve-energy sent to his eyes in twenty-four hours as is required by the entire body in emmetropia.

Statistics show that 90 per cent of all persons are defective in the eyes. If the foregoing statements are true, and any intelligent oculist can prove them to be so, is it any wonder that our offices are crowded with persons suffering with migraine, neurasthenia, dysmenorrhea, dyspepsia, chorea, and endless nervous disorders? And what do we do for them? How many physicians make any examination of the eyes at all in these cases?

The average patient suffering from any of the above-named conditions is dismissed with a prescription and a hope that he will not turn up again, but a few physicians are getting at the etiology of these conditions, and are getting results from treatment.

Why a young adult female should be castrated for ovarian neuralgia, or a child suffering from chorea should be doped with everything in the materia medica, the results in either instance being doubtful, except for the harm produced, when a correction of existing eye-defects, in most of these cases, will give permanent relief, are questions every honest physician should ask himself.

It is not the purpose of this paper to go into the physiology of the perverted nervous state produced by eye-strain, nor to infer that glasses are a panacea for all ills, but, rather, to make a plea for further investigation upon the part of medical men into a subject which has been proven to be of vital importance in the diagnosis and treatment of many so-called incurable diseases.

We pride ourselves upon our advanced systems of treatment; but, in the opinion of the writer, if the average physician were possessed of a greater ability in diagnosis, and entirely stripped of his knowledge of materia medica, his work would reflect more creditably upon his profession, and give better satisfaction to himself and his patients.

PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

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DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

GLOMERULAR LESIONS OF SUBACUTE BACTERIAL ENDOCARDITIS

BY GEORGE BAEHR, M.D.

American Journal of the Medical Sciences, Sept., 1912. No. 3, Vol. CXLIV, p. 327

Loehlein, in 1910, was the first to draw attention to lesions of the kidney glomeruli in cases of endocardial infection due to the streptococcus viridans ("the endocarditis coccus"). Baehr, in the present article, reports finding glomerular lesions in 23 out of 25 such cases whereas none occurred in 54 cases due to the ordinary pathogenic bacteria. The fact that the streptococcus viridans when grown on agar shows a marked tendency to hang together in firm clumps, leads to the assumption that in endocarditis, becoming washed off the vegetations, they plug the capillary loops of the glomeruli and thus produce the lesions. The latter necessarily vary, depending upon the stage of the process, from swelling of the glomerular epithelium to complete necrosis of the tuft and, in the healed stage, to replacement hyaline fibrous tissue. An important feature of the pathological picture is that in any section of the kidney cortex every stage of the process can be seen. E. T. F. RICHARDS.

THE RELATION OF AORTITIS TO SYPHILIS AND THE IMPORTANCE OF ITS RECOGNITION

BY CLYDE L. CUMMER, M. D. AND RICHARD DEXTER, M. D.

From the *Journal of the A. M. A.*, August 10, 1912

This is a report of 36 cases of aortic disease, that is, involvement of the aorta or aortic valves. Of this series, 27 (75%) showed positive Wassermann reactions; of which cases, 19 (70%) were men and the great majority engaged in hard labor. Eighty-five per cent. occurred between the ages of 35 and 55; and an average of seventeen years elapsed between the time of the infection and the first manifestation of the aortitis.

The principal early symptoms noted were pain, referred to region of the upper sternum; dyspnea on exertion, and a dry irritating cough. Early aortitis gives but meager physical signs: increased dulness in the second intercostal on both sides of sternum; a diastolic impact over this region; and a diastolic murmur along the left border of sternum. The *x*-ray is necessary to verify the results.

In conclusion, the authors state that a positive Wassermann reaction indicates the desirability of urgent mercurial treatment. E. J. HUENEKENS, M. D.

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MARCH 15, 1913

SPINAL ANALGESIA

In an article in the Journal of the A. M. A. for November 13, 1912, Dr. William Seaman Bainbridge outlined the development and present status of spinal analgesia based upon 1,065 cases under his personal supervision.

At the meeting of the Clinical Congress of Surgeons of North America, held in New York in November, 1912, a patient in Dr. Bainbridge's service in the New York Policlinic, died after a lumbar subarachnoid injection of stovain, preparatory to the performance of an operation for hernia. The case was given wide publicity in the lay press, as well as in certain medical journals, as a "death under stovain," a "case of stovain poisoning," etc.; interest in it being stimulated because of its coincidence with the Clinical Congress, and because of the fact that it was made a coroner's case.

The history of the case showed a very bad condition, as well as one of chronic alcoholism. In spite of the injection of only twenty-six minims of a one per cent solution of stovain, the patient died in a few moments, but without any symptoms of stovain poisoning.

The autopsy performed the following day showed a "wet brain," myocarditis, atheroma of the aorta, aortic insufficiency, emphysema of the lungs, chronic interstitial splenitis, chronic gastritis, chronic enteritis, chronic interstitial nephritis. The coroner's jury found no evidence of stovain poisoning and returned a verdict of death due to "pathological conditions." All concerned were exonerated from blame.

Dr. Bainbridge believes from his experience that "the indications for spinal analgesia are the contra-indications for inhalation anesthesia." He further says that the operator is absolutely commited to the dose, whatever it may be. It can be increased, but it cannot be decreased once given. This is one of the real objections to the use of a spinal analgesia. If used in carefully graded dosage it can be controlled. One other objection to spinal injections is the possibility of the analgesic effect passing off in prolonged operations. It cannot be used by a novice and should be employed only by those skilled in method and technic. Spinal analgesia is applicable to a large number of operations and an accidental case of death is no more likely than a death from an inhalation anesthetic. Dr. Bainbridge should not suffer from adverse criticism.

THE STERILIZATION BILL

Senate File No. 5 is "An Act to Provide for and Authorize the Sterilization of Defectives, Habitual Criminals, Persons Convicted of Carnal Abuse of Female Children Under the Age of Fourteen Years, and to Punish Unlawful Sterilization."

This bill is modeled after similar bills in other states and is our effort to weed out inferior persons who propagate their kind. If the bill simply covered the defective classes it would practically accomplish all that was desired. If, however, it covers the class of defectives who are commonly known as criminals or who spring from a criminal family it would satisfy a group of people who believe that the criminal belongs to an hereditary type. This latter class, however, should be dealt with from a broader viewpoint than simple sterilization.

The bill fortunately provides for a thorough investigation of the individual before sterilization is ordered. In order to safeguard the operation a commission composed of the chief medical officer of a state institution, the secretary of the State Board of Health and one other competent physician and surgeon appointed by the State Board of Control shall decide upon the procedure. The inquiry of this board is to be thorough and no hasty conclusion is possible. In

fact, the individual, if a criminal or in possession of his mental faculties to such a degree as to enable him to understand the situation, is to be given legal notice of the findings of the board.

The bill provides further for a hearing if the victim objects to the operation. This provision is probably necessary from a legal standpoint, but the opinion of the board should be final.

The inmates of institutions may request the operation for sterilization and no legal proceedings are then necessary. This proposition has worked out in many states to the satisfaction of all parties. In Indiana a number of criminals have willingly submitted to the vasectomy after the situation has been explained to them. When a man understands that the operation is a simple one, that it does not injure his health or sexual desires, he cheerfully permits the operation.

The greatest benefit of the bill is in the sterilization of defectives. It has been shown that defectives multiply and produce their kind in an alarmingly increasing number, hence it is imperative that some radical measures should be adopted to prevent this increase.

The following figures for the preceding twenty years are compiled from the 1910 biennial report of the State Board of Control:

Increase in population	59.4%
Increase of inmates of the hospitals for the insane	149.1%
Increase of convicts in Stillwater and St. Cloud	148.4%
Increase of inmates in the school for feeble-minded	380.7%

Convicts and insane in twenty years have increased two and seven-tenths times and inmates of the school for feeble-minded have increased six and nine-tenths times, relatively, as fast as population.

These figures show the necessity of sterilization. The operation can be performed on males in two or three minutes without pain or local anesthetic and without discomfort of any sort. In fact, it has been found that the general health is improved. The question of the sterilization of the woman is a more difficult problem, but it can be done by a surgeon, under an anesthetic, general or intra-spinal, in a remarkably short time. It is, however, a laparotomy, but of the simple form.

The bill should become a law and the working of it will soon demonstrate its effectiveness.

SPASMOPHILIA.

Friedmann, in the Zeitschrift f. d. ges. Neur. u. Psych. Orig. 9, S. 245, 1912, has an article "Concerning the Recognition of Repeated Non-Epileptic 'Absences' in Children," which was abstracted by Gött (München) in the Zeitschrift fur Kinderheilkunde, Vol. III, Sept., 1912.

The author calls attention to a new form of attacks, which occur in children, similar to those which he reported five years ago. They are the so-called "Repeated Absences." These bear no relation to epilepsy and apparently have nothing to do with hysteria. They are characterized by the following peculiarities: They begin in apparently well children from the fourth to the seventh year, usually suddenly after some excitement (fear, operation). They consist of short, light disturbances of consciousness without convulsions and without falling. They come on at first in a great number of attacks (6 to 10 to 100 per day and occasionally at night). The course of the disease is very tedious, usually being seven to eight years. There may be also long remissions. They have no disturbing influences upon the mental or bodily development of the child. This is a chief argument against their relation to epilepsy from which they, moreover, differ, in that the occurrence of convulsive attacks is never observed (fast völlige Ausbleiben). They are also to be distinguished from epilepsy by the history. Against their hysterical nature, the uniformity of the attacks, in spite of continuance for years as well as the lack of other symptoms which would make one suspicious of hysteria, may be cited. The "repeated absences" present a good prognosis in that they appear to clear up before puberty even without treatment. As far as the systematic placing is concerned, they may be related to the narcolepsy of Gelineaus and the other somewhat half understood "neurotic absences" of adults. It seems that they appear upon the foundation of a spasmophilic diathesis as, in the three cases which have been so far recently tested electrically, the increase of electrical excitability and cathodal opening contraction with less than 5 milliamperes has been observed (two of these observations were made by Mann).

Dr. J. P. Sedgwick, of Minneapolis, reports a case with his findings in another column of the Journal-Lancet, which our readers will find very interesting. This study opens up a new field of inquiry in attacks which are commonly known as "petit mal," and which have been long unrecog-

nized or, at least, undifferentiated, and the study of these conditions may lead to a new classification of small epilepsy, in fact, it may take it out of the epileptic field entirely, and if the further study of this condition proves that the spasmophilic attacks are curable, it will change the whole course of our investigation and treatment of this class of epilepsies. Apparently Dr. Sedgwick is not prepared to give a positive conclusion from his recent investigations, but his experience so far justifies a very careful study of this type of disease, and must be carried out before the child is condemned as a confirmed epileptic. If even a small number of children afflicted with so-called "absences" can be cured by dietetic therapeutics, the recoveries will lead to a decided change in our opinions and methods for their relief.

MISCELLANY

RESOLUTIONS ADOPTED BY THE HENNEPIN COUNTY MEDICAL SOCIETY ON THE DEATH OF DR. B. F. GRAHAM

Whereas, Dr. B. F. Graham, for many years a member of this society, has been called to rest from his labors,

Be it resolved, That the Hennepin County Medical Society in stated meeting assembled, express its appreciation of the character and life and work of Dr. Graham as a physician and a citizen of upright and honorable character, and,

Be it further resolved, That the Society hereby tender heartfelt sympathy to the family of Dr. Graham in their bereavement.

And be it resolved, That a copy of this resolution be sent to the family of Dr. Graham, and be recorded in the transactions of the Society and published in the Journal-Lancet.

Dr. Maurice J. Lewi, for the past twenty-one years secretary of the State Board of Medical Examiners of the state of New York, has resigned his position to become president of the school of chiropody of New York. Such an action seems like a peculiar proceeding for one who has held a position of distinction so long, but a new law in New York requires that every chiropodist practicing in that state must be a graduate of a school licensed by the Regents and must pass a State Board examination presented by the State Board of Medical Examiners, and it may be that this action of Dr. Lewi's may be the means of putting chiropody on a new and scientific basis. The school has been in existence two years and in the first year had sixty-five pupils.

REPORTS OF SOCIETIES

ACADEMY OF MEDICINE

The Academy met at the Town and Country Club Wednesday evening, March 5th, 1913.

Vice-President Dr. A. Schwyzer was in the chair, with an attendance of twenty members and one guest.

The Executive Committee reported favorably the name of Dr. Henry Ulrich for active membership.

They also approved the plan of hereafter paying the cost of lantern for members presenting subjects with stereopticon.

Dr. C. Eugene Riggs read a paper entitled "Spinal Syphilis; A Case, Some Facts."

DISCUSSION

Dr. A. S. Hamilton said that, disregarding those cases of syphilis of the spinal cord which originate in the meninges and also those spinal diseases which have only an etiological connection with lues, he could recall only two cases in his own experience where, by an autopsy, he had been able to demonstrate anatomically a specific spinal cord disease due to lues. In one instance the cord was so soft that when cut across a drop of milky fluid exuded very much as in cutting a milk weed. In the other case there was a distinct gummatous formation in the cord. He referred to another patient, a woman over sixty years old, who presented a typical appearance of cerebro-spinal syphilis, with specially marked spinal symptoms, yet autopsy revealed a spine of bone growing from a vertebra into the cord and causing the spinal symptoms.

He referred, also, to two cases he had seen where autopsy showed a great thickening of the membranes of the cord in the cervical region giving rise to symptoms of cord pressure resembling tumor of the cord.

Dr. Sneve said the interesting thing about Dr. Riggs' case is the fact of the symptoms appearing so soon after the initial lesion. He referred to some cases in his own experience and concluded that salvarsan is of no value except in such cases as the one Dr. Riggs reported, or where

there are free spirochetae in the blood. The Wasserman test he thinks is many times used needlessly when the history and the clinical picture makes the diagnosis clear without it. It is, however, of great value in the obscure cases. For instance, in one case, a babe became paralyzed in both extremities, including the bladder and bowel. There was no evidence of lues in either parent but the Wasserman proving positive the child was put on mercury and potassium iodid with the result that it made a complete recovery. In this case spinal puncture and examination of the fluid did not reveal leucocytosis.

Dr. Riggs, in closing the discussion, said that he had presented his case, not alone because it is rare, but also because of the confusion relative to the Wasserman test and his desire to make a plea for a standardization of procedure.

Dr. H. B. Sweetser then read a paper entitled "Post Operative Ileus."

Dr. Colvin in discussing the subject commended the writer's views and stated his own greatest difficulty has been with the question of diagnosis. In other words, the cases in which delay occurred, because of doubt as to the exact condition, have been the disastrous ones. On the other hand some cases in which fecal vomiting has occurred have recovered spontaneously. In a case in which he operated for obstruction he found a tiny band constricting the bowel, so frail that it must surely have yielded soon and allowed spontaneous recovery. He is inclined to raise the question as to whether it may not yet be shown that sepsis is the cause of death.

Dr. A. E. Benjamin emphasized the need of careful diagnosis, before operating, in all cases. He suggests the use of stomach lavage and enemata to straighten out the angulations and malpositions. He thinks that many cases are due to acute dilatation of the stomach, and that the early use of the stomach tube would obviate post operative ileus. When asked if he thought that lavage would reduce the size of an acutely dilated stomach he replied that he thought it would increase the tone of the musculature of the stomach and thereby greatly benefit it.

Dr. Rothrock said that in the light of recent reports our knowledge of this subject has been revolutionized in late years. Treatment by cathartics has been abandoned and surgical procedure has become conservative. He thinks the conditions found in ileus, such as the ballooning of the bowel, may be nature's attempt at conservation by preventing septic absorption.

He advocates the second opening of the abdomen, at once, when ileus is suspected. The stitches can be taken out without anesthetic; a tube is put in for drainage, the patient sits up, the stomach is kept empty and in many cases a spontaneous recovery will occur. Too early feeding after an operation is a very common error.

Dr. Sweetser said in closing that patients will often object to lavage, but that a small tube may be inserted through the nose to the stomach thereby establishing a constant drainage and prevent the so-called "Vicious Circle."

The low per cent of cases in which gangrene occurs makes it permissible to wait a long time before interfering to relieve the obstruction by operation.

A. W. Dunning,
Secretary.

HENNEPIN COUNTY SOCIETY

At stated meeting of the Hennepin County Medical Society was held in the library rooms, Feb. 3rd, 1913, with forty-five members present and Geo. D. Haggard, vice-president, in the chair. The annual report of the secretary-treasurer was received.

The application of Dr. S. C. Schmidtt for membership by transfer was read. Dr. G. A. Dahl was elected to membership. Dr. R. E. Farr presented two clinical cases of chauffeurs who had sustained fractured arms. Dr. J. E. Moore read a paper on "Thirty Years Experience in the Medical Profession in Minneapolis," and Dr. H. L. Ulrich read a paper on "Auricular Fibrillation."

A meeting of the Hennepin County Medical Society was held in its rooms, March 3rd, with fifty members present and Geo. D. Haggard, vice-president, in the chair. Dr. Spratt presented a case of oteitis media with necrosis of the mastoid and abscess formation. Dr. Strachauer gave an informal report on fracture of the surgical neck of the humerus with presentation of patient. Dr. G. H. Burfiend was elected to membership by transfer. The following men made application for membership: Dr. Edwin L. Gardner, Dr. E. L. Paulsen, Dr. John M. Lajoie, Dr. S. Groll, Dr. Huber W. Thompson, and Dr. T. A. Peppard.

Dr. J. S. Bissell read a paper on "The Present Status of Roentgen Diagnosis in Gastro-Intestinal Disease," illustrated by lantern slides.

NEWS ITEMS

Dr. A. M. Davis, of Akeley, Minn., has moved to Roosevelt.

Dr. J. W. McDonald, of Minneapolis, died at his home, March 4th.

Dr. E. L. Warren, of St. Paul, has moved to Pasadena, California.

Dr. H. B. Blanchard, of Columbus, N. D., died at his home, Feb. 19th.

Richmond, Minn., is to have a modern hospital under the charge of Dr. J. J. Gelz.

Dr. Samuel Chernausek, of Montgomery, Minn., will locate at Dickinson, N. D.

Dr. P. R. Hanke, formerly located at Monticello, Wis., has moved to Wadena, Minn.

Dr. Ralph S. Perry, of Parker's Prairie, has returned to Farmington, Minn., where he formerly practised.

Dr. George R. Harnden has left Sherburn, Minn., for Stillwater, Oklahoma, where he will reside in the future.

Dr. Ernst G. Sasse, of Bear Creek, Mont., and Miss Sophia Pearson were married at Hot Springs, S. Dak., Feb. 10th.

Dr. Harry N. Sutherland, of the Children's Memorial hospital of Chicago, has accepted a position on the staff of the Shipman hospital with Drs. Ayres and Parker.

Dr. F. L. Smith, of Chatfield, Minn., will remove to Eyota and take up the practice of Drs. Dugan and Hollenbeck, who will practise medicine in partnership in Kansas.

The Swedish hospital of Minneapolis celebrated the fifteenth anniversary of its foundation Feb. 24th. In this time the hospital has cared for 20,981 patients. Plans are being drawn for an addition to be built the coming summer, to cost $75,000, and to house sixty additional patients.

PRACTICE FOR SALE

Established practice in live North Dakota town. A rare chance for a recent graduate. Has paid $10,000 in last 2½ years. All for $500 cash, including fine office fixtures complete. Address S. R., care Journal.

AMBULATORY SPLINT FOR SALE

An ambulatory with pelvic attachment, cost $55; never been used; will sell for $27.00. Chas. T. Granger, M. D., Rochester, Minn.

PRACTICE FOR SALE

A practice bringing in from three to five thousand dollars a year in pleasant locality. Good hospital accommodations; city of 2,000 people; good farming community, and good pay. Doctor wishes to leave on account of health. Will give his practice if physician will buy his house and lots at a reasonable price. An excellent location for some good physician. Address R. S., care of this office.

OFFICE FIXTURES FOR SALE

A full line of surgical instruments, Yale combination chair, a new Bausch & Lomb microscope, books and office furniture, all in the very best condition, being the property of the late Dr. S. H. Van Cleve. Address C. M., care of this office.

FOR SALE

Complete set of instruments, office furniture, books, etc., belonging to the late Dr. B. F. Graham, occulist and aurist, can be seen at No. 28 Hyland Ave., Minneapolis.

HOSPITAL FOR SALE OR RENT

A new and modern hospital building in a North Dakota town in a fine and prosperous community, mostly Americans (Catholics), is offered for sale or rent at a moderate price. This property belongs to a doctor's widow. It has 16 rooms, hot water heating plant, a beautiful location. The opening is an excellent one for a doctor. Address S. G., care of this office.

SANITARIUM MANAGER WANTED

A good M.D. is wanted to act as physician and manager of a sanitarium near the Twin Cities. Write to E. J. Smith, 268 E. Annapolis St., St. Paul, Minn., giving particulars and salary expected.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797. Postgraduate Medical Dept., Tulane University of Louisiana.

Real and Apparent Nutritive Values

While laboratory problems are readily worked out to logical, and, what appear to be, convincing conclusions; clinical experience frequently modifies some of these conclusions, or seems to disprove them altogether.

The reason is, perhaps, that full data are the essentials upon which to base correct findings, and such are not always, actually, though apparently, available---in the laboratory.

For example: To estimate the "calorie" value of Whole Wheat and Barley, would seem (in the laboratory) to be a correct computation of the dietetic value of the well-known food (made of these two cereals)---

Grape=Nuts

But, professional accuracy of observation from a clinical standpoint, and confirmed, in an empirical way by many of the more intelligent laity, has shown in many individual cases during a decade or more, that Grape-Nuts, for some reason possibly not readily demonstrable by the mathematics of chemistry; supplies in a prompt and practical way, far more real nutritive value than the laboratory chart gives to mere Wheat and Barley.

The above is well worth looking into by the physician who is broad and scientific enough to go after the best results for his patients.

Grape-Nuts has a greater food-value than mere Wheat and Barley---even outside the acceded advantages of proper cooking. It is a concentrated food, and contains all the proximate principles necessary in the highest form of food---protein, carbohydrates, salts, etc., and its solubility makes it ready for immediate digestion.

We shall be pleased to have expressions of experience from the profession.

The "Clinical Record," for Physicians' bedside use, together with samples of **Instant Postum, Grape-Nuts** and **Post Toasties** for personal and clinical examination, will be sent on request to any physician who has not yet received them.

Postum Cereal Company, Limited, Battle Creek, Michigan, U. S. A.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF DECEMBER, 1912

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	1															
Alexandria	2,681	3,001	4		1													
Anoka	3,769	3,972	5			2										2		
Austin	5,474	6,960	5															
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	3															1
Benson	1,525	1,677	3			2												
Blue Earth	2,900	2,319	0															
Brainerd	7,524	8,526	6	3														1
Breckenridge	1,282	1,840	4												1			
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	2															
Chaska	2,165	2,050	1															
Chatfield	1,426	1,226	4													1		
Cloquet	3,074	7,031	4	1		1	1											1
Crookston	5,359	7,559	13	1												2		
Dawson	962	1,318	0															
Detroit	2,060	2,807	0															
Duluth	52,968	78,466	73	7		9		1						3	6	5		4
East Grand Forks	2,077	2,533	1															
Ely	3,572	3,572	5			1												
Eveleth	2,752	7,036	14	1		5									1			1
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	5							1						1		1
Fergus Falls	6,072	6,887	9												1			
Glencoe	1,788	1,788	3			1	1											
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	0															
Hutchinson	2,495	2,368	1															1
International Falls		1,487	4													1		
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	3															1
Le Sueur	1,937	1,755	2												1			
Little Falls	5,774	6,078	7													1		
Luverne	2,223	2,540	3												1	1		
Madison	1,336	1,811	1															1
Mankato	10,559	10,365	13	2	1	2									1	1		
Marshall	2,088	2,152	2		1											1		
Melrose	2,591	2,591	3			1												
Minneapolis	202,718	301,408	306	30	6	34	5								6	32	3	18
Montevideo	2,146	3,056	5	1														1
Montgomery	979	1,267	2															
Moorhead	3,730	4,840	9	2		2												
Morris	1,934	1,685	0															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	10													1		
Northfield	3,210	3,215	3															
Ortonville	1,247	1,774	0															
Owatonna	5,561	5,658	2															
Pipestone	2,536	2,475	4															2
Red Lake Falls	1,666	1,666	2															
Red Wing	7,525	9,048	17			1										3		1
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	31			1										6		1
Rushford	1,100	1,011	1															
St. Charles	1,304	1,159	5	1														
St. Cloud	8,663	10,600	9		1											1		
St. James	2,102	2,102	2	2														
St. Paul	163,632	214,744	188	22	6	25	2		1					1	7	15	1	9
St. Peter	4,302	4,176	3													1		
Sauk Centre	2,154	2,154	4													1		
Shakopee	2,046	2,302	4			1												
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	3															
Staples	1,504	2,558	2	1														
Stillwater	12,318	10,198	15	1							1				1			1
Thief River Falls	1,819	3,174	4	1												2		
Tower	1,111	1,111	1			1												
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	7	1							1							1
Virginia	2,962	10,473	9			3												1
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	4													1		1
Waseca	3,103	3,054	5	1														
Waterville	1,260	1,273	4			2										1		
West St. Paul	1,830	2,660	2			1												
Willmar	3,409	4,135	4			1												
Winona	19,714	18,583	19	1												1		1
Winthrop	813	1,043	2															2
Worthington	2,386	2,385	2															

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	1	1														
Akeley			1	1														
Appleton	1,184	1,221	2															1
Belle Plaine	1,121	1,204	0															
Biwabik		2,690	1								1							
Bovey		1,377	0															
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	1	1														
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	*															
Chisholm		7,684	7			1					1			1	1			
Coleraine		1,613	1															
Delano	967	1,031	1															
Farmington	733	1,024	0															
Fosston	864	1,055	1															
Frazee	1,000	1,645	1															
Glenwood	1,116	2,161	3															
Grand Rapids	1,428	2,239	5	2											1	1		1
Hibbing	2,481	8,832	10		2	2	2								1			1
Jackson	1,756	1,907	1															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	0															
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	4															1
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	2															
Milaca	1,204	1,102	2															
Mountain Lake	959	1,081	1			1												
Nashwauk		2,080	1															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	2	1														
Park Rapids	1,313	1,850	1															
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	2													1		
Pine City	993	1,258	0															
Plainview	1,038	1,175	0															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	2													1		
St. Louis Park	1,325	1,743	2			1												
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	2															
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	5	1														
Spring Valley	1,770	1,817	1															
Wadena	1,520	1,820	5			1		1			1							
Wells	2,017	1,755	3													1		
West Minneapolis	2,250	3,022	5													2		
Wheaton	1,132	1,300	1			1												
White Bear Lake	1,288	1,505	0															
Windom	1,944	1,749	*															
Winnebago City	1,816	2,555	2	1														
Zumbrota	1,119	1,138	1													1		
STATE INSTITUTIONS																		
Anoka, Asylum			3	1												1		
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			8	4														
Fergus Falls, Hospital for Insane			12	4		2												
Hastings, Asylum			1															
Minneapolis, Soldiers' Home			8			2												
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			24	2	1	2												1
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			10	3														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			706	52	8	55	3	4	1		2	1	1	5	27	48	3	46
Total for state			1754	153	27	164	14	6	2	1	7	1	1	10	56	137	7	102

*No report received. Registrar not doing his duty.

132 stillbirths not included in above totals.

PUBLISHER'S DEPARTMENT

MUDLAVIA

The "Mudlavia" at Kramer, Ind., has been very fortunate in securing the services of Dr. Geo. F. Butler, A. M., M. D., of Chicago, to take charge of the medical department of this institution. Dr. Butler is well known as the author of many books on therapeutics, public health and sex hygiene. He has been at the head of one of the leading departments at Chicago University and a contributor to several medical journals. Mudlavia is now recognized by many physicians as a sanitarium where the very best care is taken of all patients sent them, either for health or a great resort for rest and recuperation. They invite correspondence from physicians.

SURGICAL SHOCK; ITS PREVENTION

"In major operations, absolutely essential for the eradication of malignant diseases, the removal of neoplasms and similiar shock-producing procedures, occurring in individuals afflicted with advanced organic, cardiac and arterial disease, by subjecting such to a course of Digalen treatment for from four to six weeks, circulatory equilibrium is established upon a sufficiently firm basis to enable these cases to withstand serious operations successfully.

In the impending collapse, during major operations, the injection of from two to four cc of Digalen, after a few minutes cessation of operative procedure, has rendered it practicable to successfully terminate an otherwise fatal operation. So marked have been the results following this especial use of Digalen that I have almost become routine in its administration in anticipating and preventing, to a large degree, surgical shock in major operations. HENRY BEATES, JR., Philadelphia.

PHYSICIANS' DEFENSE COMPANY

An interesting table of statistics furnished by the Physicians' Defense Company of Fort Wayne, Indiana, is given below. This gives a recapitulation of the basis of all malpractice suits which have been passed upon by the Supreme Courts of various states:

	Per cent.
Fractures	47.1
Miscellaneous	18.1
Surgery	17.5
Obstetrical	5.3
Dislocations	3.5
Erroneous diagnosis	2.7
X Ray (use of)	2.0
Conduct of autopsies or inquests	1.6
Prescription and dispensing of drugs	1.3
Conduct of insane investigations	.9
	100.0

From the above it will be seen that the most prolific source of malpractice suits is the treatment of fractures. Under the heading "Miscellaneous" are included cases in which the nature of the injury or treatment is not clearly set forth in the court's decision, or where the cases were appealed on some legal technicality and the original cause of action was not considered in deciding the appeal.

This table indicates that no practitioner, whatever the scope of his work, is exempt from the liability of being made the defendant in one of those annoying actions, for the general practitioner and the specialist are equally liable. It therefore behooves every physician and surgeon to arrange for protection against malpractice suits and the contract of the Physicians' Defense Company is well worth investigating. A postal to their Home Office at Fort Wayne, Indiana, will secure full particulars.

SANITATION.

Clean up and keep clean will henceforth essentially have to be the practice, as well as the policy, not only of local Boards of Health and every physician, but of each and every individual comprising the community, town, village or city. As no chain can be stronger than its weakest link, no community can claim better sanitary conditions or greater cleanliness than the most indifferent member of its society.

Sanitation, therefore, must necessarily begin in the home, but where sewerage is not maintained, and no provision is made for the collection of garbage, the problem presents many vexing and perplexing conditions, by no means easily overcome. Exhaustive research, investigation, and actual demonstration conducted by the Rex Sanitary Closet Company, of Minneapolis, proves that every village or town, no matter how small, can be made just as clean and more sanitary than any city with adequate sewerage system, without the pollution of streams or soil, and at considerable smaller expense.

The system promulgated, provides, first of all, for a sanitary and perfectly odorless toilet closet in the home. This method effectively eliminates that most fruitful source of disease bacteria, as well as their carriers, the house and barn fly—the foul-smelling outside vault closet.

The plan in operation provides, also, for the collection and disposal of all garbage, including every kind of offal, and recent authentic investigation relegates responsibility for Pyleo-Myelitis to the "Manure Pile" or stable refuse, and its transmission therefrom, by the barn fly, which grave danger is also eliminated.

Every local Board of Health, who appreciates his responsibility to the community to the extent of possessing the willingness of "being shown" should write the above company, direct, at their new address, No. 11 North Sixth Street, Minneapolis. They promise that the service of their Sanitary Expert will be at the command of such Boards of Health as promptly as the progress of this work will permit.

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THE OPEN TREATMENT OF FRACTURES*

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There is no subject in medicine of more widespread interest than the subject of fractures. Nearly every practitioner is called upon at some time to treat this condition and then realizes the great responsibility which he carries. Many of us have felt the lack of that security and ability to deal with fractures which we feel we possess in other lines of our work; and if we ever long intensely for eyes in our finger tips, it is in diagnosticating and treating fractures. It is not strange, then, that a revival of interest in the subject should be periodical, or that some new method for the treatment of this condition should be productive of much literature and spirited discussion. One has but to glance at the medical journals of today to realize the interest taken by the medical profession in the open treatment of fractures. The reason for this interest has developed from several causes. The advances made in *x*-ray work have shown us our errors in reducing and treating fractures with such positive evidence that no ground for argument is left. It has also shown that nature comes to the physician's rescue in bone-work as often as in other lines of medicine, and that her efforts at rounding off angles, strengthening weak areas, and readjusting the skeleton are necessarily slow but exceedingly efficient.

There is a feeling among physicians that the operative treatment of fractures has not made the same rapid advance as have other lines of aseptic surgery. The splendid work of Arbuthnot Lane in demonstrating the value of common steel plates and screws in the repair of fractures, and his belief that all fractures should be treated by the open method, have been potent factors in stimulating interest in the subject. These are but a few of the causes which have at the present time revived the interest in the open treatment. The many valuable papers on the subject by American surgeons have brought about a fairly well-established basis for the method. This ground, as expressed by the majority of our leading surgeons, is essentially as follows: Every case of fracture must be considered individually as to whether a better result can be obtained by the non-operative or the operative treatment. I can give no better idea of what I mean than by quoting the words of Joseph Blake*, who says: "As to what constitutes a reasonable doubt as to the ultimate results from non-operative treatment, depends so much upon the thousand-and-one conditions that may be present in the patient, and also upon the ability of the surgeon to meet them, that it is practically impossible to state in so many words what fractures should be treated without and what by operation. Again, one surgeon may be able to do rapidly, accurately, and cleanly what would be practically impossible for another; so that there are considerations to be taken into account other than the conditions present in the patient. In fact, there is no province of surgery in which the results depend more upon the mechanical skill and cleanliness of the operator."

*Read before the Southern Minnesota Medical Society, August 6, 1912.

*Surg., Gynec., & Obst., April., 1912, p. 338.

Most fractures can be successfully reduced and retained in position, so that an open operation is not necessary for a good functional result. If a fracture cannot be reduced and retained in position by the ordinary means at our disposal, it should be treated by the open method to accomplish this reduction, provided a reliable surgeon can be obtained and the patient's condition will warrant it.

There is no emergency in which the final results depend more upon the intelligence and painstaking attention to details by the physician than the care of fractures. Two *x*-ray photographs at planes 90° to each other should be taken of every fracture where possible. Every physician who has sustained a fracture himself, no matter how much confidence he has in his surgeon, usually insists upon an *x*-ray photograph. He should be anxious to allow his patient the same privilege.

Many compound, comminuted fractures with considerable mutilation of the soft tissues, are best treated by immediate operation, which allows the small fragments of bone to be removed, and this provides for the removal of soft parts that may be interposed between the fragments, as well as for the application of some form of fixation to the remaining bone, if necessary. The patient is thus saved much time, and a better final result is obtained.

If an operation be necessary, the time of operating and the condition of the patient are important factors. Most physicians agree that an operation immediately following a fracture is often necessary; but when three or four days have elapsed and there is a great deal of edema of the soft parts, it is wiser to wait until this extreme swelling has subsided. The tissues are then in better condition to resist infection and stand added traumatism.

The technic of operation that has been worked out by those who do a great deal of bone work has had no small part in producing the many brilliant results obtained. All surgeons agree that asepsis is of extreme importance and that an operation should rarely be undertaken unless the conditions for avoiding infection are present. After the incision is made, the edges of the incision and the skin should be carefully covered with towels or cloths moistened in salt solution, to prevent infection from the edges of the wound and skin being carried to the deeper parts of the wound. The incision should be planned to avoid the more important nerves and blood-vessels and to allow the exposure of the fracture with as little traumatism to the overlying muscles as is possible. The periosteum should be saved wherever possible. If it be necessary to place a plate or other mechanical appliance on the bone to retain the fragments in position, it should be placed on top of the periosteum and not underneath it. The pressure from this appliance, which, theoretically, would cause degeneration of the periosteum, does not often do so.

Every mechanical appliance that is intended to remain permanently in the wound should be applied so that it is absolutely immovable, since it has been demonstrated that its tendency to work loose and require later removal is much less if so applied. No antiseptic should be used in the wound when a foreign body is to remain on the bone permanently, as this has a tendency to produce oxidization and to bring about a condition which will later require removal of the retaining substance. Drains should be avoided if possible. Steel plates have less tendency to work loose and require later removal if placed so that they are covered to a considerable depth in the soft tissues. When so placed that they have only the skin covering them, they nearly always require removal at some later period.

Hemorrhage should be carefully controlled and all dead space obliterated, in order that the circulation be taxed as little as possible. We believe that most American surgeons prefer a light retention-dressing of some kind on all fractures that have been operated on. A light plaster-of-Paris cast is our preference. It is often well to split this cast immediately to avoid pressure from swelling, which may occur.

All surgeons who are operating on fractures agree that the instruments which have been developed by the present revival of interest in this line of work are exceedingly valuable, that they accomplish their purpose well, and that they are the most satisfactory of any devised, so far, for the purpose.

The long forceps used for steadying and tracting upon the shafts of bone prevent much mutilation of the soft parts, eliminate the necessity of putting the hand into the wound often, and shorten the operation considerably. The apparatus for producing traction to overcome shortening and the overlapping of the fragments in long bones, such as that devised by Martin, Bartlett, Magneson, and others, is of great value, especially in old fractures.

No discussion of the open treatment of frac-

tures would be complete without making mention of the steel plates and screws devised by Arbuthnot Lane, although it should be remembered that they are but one of the valuable appliances for retaining fractures in position. It has been demonstrated that common steel plates, wire, screws, and nails are better than the silver previously used, since they are stronger and do not irritate the tissues to a greater extent. When the plates are used, they should be of good material, to minimize the danger of their being broken.

An open operation does not necessarily mean that some foreign material must be left in the wound after reduction, since the fragments can often be retained in position without such an appliance. The steel plates are especially valuable on the shafts of long bones and are being used more and more as experience demonstrates their efficiency. Foreign material should not be left in close proximity to a joint, as the callus and the appliance itself may interfere with perfect movement.

Fractures of the clavicle Colles' and Pott's fractures rarely require open operation. Fractures of the patella nearly always are best treated by open operation. The operation of Blake, which consists of suturing the periosteum and soft tissues without any retention-apparatus securing the bone, is perhaps the best operation, although a wire or suture encircling the fragments is sometimes necessary. Fractures of the hip-joint, when requiring open operation, are treated most successfully by using nails or screws, instead of wire or plates. Fragments of the shafts of the long bones, when requiring operation, can be retained in position more securely by a plate and screws than by any other method yet devised, but a plate is not always applicable, and at the time of operation the kind of retention apparatus best suited to the case must be selected. Fractures about the elbow seldom require operation unless the olecranon is broken off or the head of the radius displaced. Suturing the olecranon with chromic catgut serves to give the best results.

HIGH BLOOD-PRESSURE AND ARTERIOSCLEROSIS*

By W. H. Bodenstab, M. D.

BISMARCK, N. D.

The cells of the body are nourished through the capillaries. In order that these cells may be efficiently active, it is essential that they have a continuous supply of blood, and it is the function of the circulatory apparatus to keep up a continuous flow through the capillaries. This continuous flow requires a certain pressure in the blood-vessels varying between 100 and 200 mm. of mercury in the arterial system. The normal blood-pressure, or the usual systolic arterial pressure, is about 125 mm. of mercury. This is more than is actually necessary to drive the blood from the arteries into the veins, but this extra pressure has a function which is seen whenever the arterioles of any organ or small area relax. If the arterial pressure were barely adequate to sustain the flow, the lowered resistance in such a region would seriously drain other regions. The high head of pressure therefore keeps all parts supplied with blood, even if an especially active part of the body is making unusual demand.

When we study the arterial system we find that the area of a cross-section of the combined vessels very rapidly increases from the heart outward. In this series of passages the blood is contained and held under pressure by a muscular envelope. From this reservoir, as it were, the blood escapes for use through the arterioles and capillaries, and the office of the heart is to pump into this reservoir sufficient blood to maintain the pressure, which is depleted by the blood used in the capillaries. It is easy to see that the maintenance of the circulation is not a question of the degree of tension in any part of the circulatory system, but is a proper relation in tension between pressure in the arteries, where the blood is stored, and the points at which it is needed. It is usual, however, to study the question from the standpoint of the arteries, because in most cases it is only late in circulatory disease that venous pressure becomes of importance.

The physiologic relations of blood-pressure in health are very instructive. Muscular exercise at first raises blood-pressure, but after the exercise has been continued for some time the pressure falls again to normal. During the existence of this increase in blood-pressure there is a

*Read before the Sixth District Medical Society, Mandan, N. D., November 12, 1912.

large amount of blood in the arteries, obtained from the large veins in the abdomen, which act as a source of supply from which blood can be drawn to flush any part of the arterial system. This tide of blood between the digestive organs and the systemic area is shown in many ways. The indigestion following exercise after eating, and even more markedly the indigestion following strong emotions after meals, shows that the tide has set the other way. The lethargy and mental inactivity of those who habitually overeat, and the tendency to indigestion of mental workers, indicate the same thing.

The main factors determining the degree of arterial pressure are,—

First—The energy of the heart in regard to the amount of blood pumped into the arteries in a given time, and

Second—The resistance offered by the arterial system during the same time.

We have, therefore, two great groups of cases: low-pressure cases and high-pressure cases, the former resulting from inflammation or degeneration of the heart-muscle itself, its envelopes or its valves, which primarily interfered with the blood-propelling function of the heart; and the latter, all those in which disorder of the arterioles, due to toxemia or other cause, has brought about an unreasonable demand on the part of the system for a high pressure in the arterial reservoir to determine the proper supply of blood to the organs. Vasodilation therefore reduces blood-pressure, and vasoconstriction increases it.

I have limited this paper, however, to the second group of cases, those of high blood-pressure and arteriosclerosis, a condition which is so often taken, or rather mistaken, for high blood-pressure.

Arteriosclerosis may or may not be attended by heightened arterial tension, and *vice versa*. We attribute to arteriosclerosis more than its share of blame for raising blood-pressure, which no doubt arises from the fact that we can often find thickening of the vessel-walls in cases where the blood-pressure has been elevated for any considerable time, and we jump at the conclusion that the increase in pressure is caused by the sclerosis, when, as a matter of fact, the contrary is the case.

I have repeatedly seen cases with a blood-pressure of from 180 to 200 mm. without any evidence of arteriosclerosis. On the other hand, patients have come under my observation who were undoubtedly suffering from arteriosclerosis, but whose blood-pressure registered only 100 or 110 mm. of mercury. Rudolph, in an extensive investigation, found that in only 50 per cent of cases of well-marked arterial thickening was the blood-pressure greater than normal. He mentions several fatal cases of sclerosis in which the blood-pressure was not increased.

From a practical standpoint it is immaterial whether arteriosclerosis is the result of high blood-pressure, or whether high blood-pressure is the result of arteriosclerosis. The fact remains that, in either case, extra work is put on the heart, in order to force the necessary amount of blood through the narrowed arteries, and it becomes hypertrophied, its valves become incompetent, and there are found the consequent palpitation, dyspnea, and cyanosis.

Disorder of the general circulation is the great factor which has to do with the limitation of life in all persons who escape those causes of death which are more or less accidental; and when local disease is eliminated, duration of life depends on the integrity of the heart and blood-vessels. In order that life may be prolonged under these circumstances, an early recognition of existing conditions is essential. If we find a pipestem or goose-neck radial artery that is incompressible, and a ringing aortic second sound in an elderly man with interstitial nephritis, our diagnosis is made for us. However, it is not that sort of case that we are dealing with, but one which shows none of these characteristics, yet, on the contrary, one who has no change in the palpable arteries, a slightly accentuated aortic second sound, and possibly a faint systolic whiff, and a practically normal urine. When, however, his blood-pressure is taken we find it to be 160 or 180 mm. of mercury, or even higher. So many of these cases come under our observation when we keep our eyes open for them, cases of increased blood-pressure, and it is up to us to find the cause in order to give them the proper medical assistance.

Conditions which bring about heightened blood-pressure are both physiological and pathological. Among the physiological conditions are age, posture, and physical exercise. Observations have shown that the blood-pressure of a child of five is only half that of an adult of twenty, the pressure increasing farther with old age.

The change from a horizontal to a vertical posture causes only a slight increase in pressure.

Exercise has a marked influence on blood-pressure for a certain length of time, but if hard work is done the pressure remains well above the normal until the body is again at rest. Pain and excitement should be classed as pathological causes, and have a marked influence on blood-pressure. Pain caused by pinching or slapping the skin is frequently used in persons who have fainted. Excitement, such as anger, rage, or fright, is accompanied by a rise in arterial tension, which is probably due, in the main, to peripheral resistance and also to an increase in the pulse-rate. Adrenalin is a very potent vasoconstrictor, and very small doses injected into the system will cause a prompt rise in the blood-pressure. De la Paz and Cannon have shown that emotional excitement will increase the secretion of the adrenal glands, which may have a bearing on some pathological conditions accompanied by high blood-pressure.

General arteriosclerosis has a marked influence on the blood-pressure, because of the increased resistance offered to the flow of blood through the arteries. When the renal arteries alone are sclerosed and a chronic interstitial nephritis develops, we find heightened arterial tension. This is also the case in other renal diseases, and it does not seem rational that the rise of pressure should be attributed to the mechanical interference with the flow of blood through so small a portion of the circulatory apparatus, but, rather, to the presence of some toxin or vasoconstricting substance circulating in the blood as a result of the kidney disease. Schur and Wiesel have shown that the adrenalin content in the blood is higher than normal in diseases of the kidneys, but their observations have not been substantiated.

The causes of arteriosclerosis can be put down under two main heads: viz.: (1) toxic, including lead poisoning, infections of all sorts, excess of certain internal secretions, such as adrenalin and absorption of some putrificative products from the intestinal canal; and (2) senile, in which would be included the wear and tear from overwork.

Among the toxic causes, lead and syphilis have long been recognized as prominent factors in the production of arteriosclerosis. Lately, many infections, such as influenza, tonsillitis, peritonitis, and others, are being held responsible for arterial changes. The long-continued administration of adrenalin, as well as the pathological changes in suprarenal tumor, have been shown to bring about the same result.

Marchand quotes many cases of autopsies in persons under thirty where arteriosclerosis was found, but none of these showed primary nephritis. The etiology, however, showed acute infections, such as measles, scarlet fever, diphtheria, rheumatism, typhoid fever, etc.

Metchnikoff, in a series of experiments, demonstrated that paracresol and indol, putrefactive products of the intestine, when injected into rabbits, monkeys, and guinea-pigs over an extended space of time, caused marked arterial hardening. Skatol, another putrefactive product of the intestine, when injected, produced no such results.

The second group of cases, those of wear and tear, exert their pernicious influence on the circulatory apparatus, and these are daily brought to the attention of the general practitioner. We find them in business men, in ministers, in doctors, in lawyers—in fact, in all walks of life, but particularly among brain-workers who are steadily kept at a high pitch. How many doctors are there who have just reached the stage which Osler calls the climax of mental development, who have done a large and trying practice, who suddenly develop symptoms of neurasthenia, who become nervous and irritable, who worry over their cases, and who find that they must have a certain amount of stimulation, in order to do their work, or a hypnotic, in order to get the proper amount of sleep. These men have been living two years in every one, and have been burning the candle at both ends, as it were. When you test their blood-pressure, you find that their heart is pumping blood to the brain under a pressure of 160 or 180 mm. of mercury. They are not neurasthenics, although they complain of this or that nervous symptom in the head or stomach. They are worn out. Their kidneys, their brains, their arteries, have been pushed to the limit. Their snap is gone, and it is then that they seek advice.

With regard to the symptomatology of high blood-pressure and arteriosclerosis, whole books might be written, for the symptoms may simulate almost any known disease, and cause nearly anything, from a fleeting dizziness to gangrene of the lower limbs. While, on the other hand, in spite of a high blood-pressure and a marked arteriosclerosis, the patient may feel no discomfort and be led in nowise to diminish his activities, because the change in pressure has been so gradual that the body has been able to adapt itself.

Among some of the early symptoms we find

dizziness, sudden attacks of vertigo, a vague unpleasant feeling in the head, cold and clammy hands and feet, pains in the extremities, and acrocyanosis; intermittent claudication of the brain or of the legs, gastric disturbances, sleeplessness, and constipation; tinnitus aurium, deafness, deficient eyesight, and headaches.

All these symptoms are such as bring the patient directly to the internist, but there are others who will consult a specialist on account of local disturbances, and the first hint of the prevailing condition is often furnished by the ophthalmologist, who has been consulted for gradually on-coming failing vision from simple atrophy or sudden loss of sight from retinal hemorrhages.

DeSchweinitz has described the changes in the retinal vessels in persistent high arterial tension, when a symptom of arteriosclerosis, and has emphasized the value of ophthalmoscopic examination in determining the condition of the arteries, even at a stage of the disease so early that no general symptoms conclusive of arteriosclerosis have appeared. He strongly urges ophthalmologists to refer patients to the internist for investigation and treatment when sclerosis of the retinal vessels is found, particularly since experience has taught him that the condition of the retinal vessels is very strongly indicative of the condition of the cerebral vessels, and, by taking the hint and beginning treatment early, apoplexy may be avoided and life prolonged. Gastric symptoms often send the patients to the doctor. They complain of severe pains in the stomach, and vomiting a half hour or an hour after meals, especially after exercise, which is only relieved by resting. Yet they are treated with bicarbonate of soda, pepsin, hydrochloric acid, laxatives, and what-not, when the real cause of the trouble is in the sclerosed splanchnic vessels and a weakened heart.

Often it is not until these people have hemorrhages in the retina, or show signs of cardiac weakness, or complain of frequency of urination at night, that they are suspected of having more than a nervous condition. Then it is found, when almost too late, that they are suffering from early arteriosclerosis, that their blood-pressure is 200 mm. or more, or that their urine contains albumin and casts. I say too late, because it will take a year or more of absolute rest, freedom from care, and out-of-door life, with restricted exercise and a strict adherence to a carefully planned non-nitrogenous diet, before they can return to anything like normal health. But even then they are damaged people and can never return to their work, and can never again live at the high speed of former years, but must descend to a much more moderate life or prepare for the hereafter.

I do not intend to take up the treatment of the altered conditions of the circulatory apparatus, because we cannot soften a sclerosed artery, nor can we bring back to normal a degenerated heart-muscle, but we can prevent them, if taken in time, and it is with the principle of prevention uppermost in my mind that I am making the plea for the early recognition of high blood-pressure and its sequel, arteriosclerosis.

THE MALE BLADDER CHANGES IN FORM AND POSITION FROM INFANCY TO OLD AGE*

By Franklin R. Wright, M. D.
MINNEAPOLIS

The bladder appears in the embryo at the second month as a spindle-shaped dilation of the stock of the allantois. At birth it lies entirely within the abdominal cavity, the internal meatus being on a level with the upper border of the pubes. In the adult the bladder is in the true pelvis. In the male it lies between the symphysis pubes and the rectum, resting on the prostate; in the female, between the symphysis pubis and the uterus, resting on the vagina. The migration from the abdomen begins during the fourth year, and by the end of the tenth year the bladder has assumed its permanent position in the pelvis.

The bladder of an infant is spindle-shaped; but when distended it becomes egg- or pear-shaped. It lies in contact with the anterior abdominal wall with the broad expanded end upward. The peritoneum covers the top and posterior surface, extending low enough to include the seminal vesicles. The distended bladder of the adult is almost spherical in shape, but wider from side to side than from before backward.

*Read before the Stearns-Benton County District Medical Society, Sept. 18, 1912.

The internal meatus is at the lowest point in the bladder, its axis being almost parallel to the long axis of the body. The distended bladder rises well above the upper border of the symphysis pubis, and its anterior surface lies in contact with the posterior surface of the anterior abdominal wall, being separated from it only by the loose cellular tissue. In fact the anterior surface of the distended bladder of either an infant or an adult is always in contact with the anterior abdominal wall. Nothing is ever found between them except a layer of cellular tissue. The peritoneum covers the top and the posterior surface of the bladder, extending almost to the seminal vesicles.

As the distended bladder contracts, it maintains its spherical shape until it is almost empty. Then either the upper wall falls in, leaving the upper surface concave, or the posterior wall is pressed forward, and in this way the surface of the mucous membrane is brought into close apposition, and the last portion of the urine is forced into the urethra.

The fact that the bladder folds on itself, instead of contracting into a small round mass, accounts for the lack of functional disturbances following the sewing of the bladder to the anterior abdominal wall, as is sometimes done in making suprapubic drainage.

The muscular wall of the bladder of the youth and young adult is from two-fifths to one-half inch thick. It possesses all the activity of the young muscle. During the act of urination the urine is forced out with a considerable degree of force. As age increases, the bladder-muscle loses its strength and activity just in proportion as other muscles in the body lose their suppleness, so that in the youth the act of emptying the bladder is accomplished with little effort, and in the old man it is an act consuming considerable time and requiring a distinct effort.

In advancing years, in addition to the loss of muscular strength in the bladder-wall, we have another factor which enters into this disturbance of urination, and that is the change in the shape of the bladder. This change in the shape of the bladder is due to the development of senile hypertrophy of the prostate. It has been stated that 75 per cent of the men who have passed the age of 65 show hypertrophic changes in their prostate. This being true, 75 per cent of the men above the age of 65 have the form of their bladder altered. Of this number, in 35 per cent the form of the bladder will be altered sufficiently to make a marked change, and in 16 per cent the alteration is sufficient to bring about constitutional symptoms, which can be traced directly to the alteration in the shape and function of the bladder.

As the prostate develops it does so at the expense of the posterior urethral wall, which becomes lengthened, the floor of the bladder is raised up, and there develops behind the prostate a pouch, from which it is impossible to pass the urine. The meatus is no longer at the lowest point in the bladder; its axis is changed so that instead of corresponding to the long axis of the body it inclines downward and backward. The changed position of the meatus, together with the weakened muscle in the bladder-wall, brings about impaired function. The muscle of the sphincter fails to relax in response to nervous influence. The weakened bladder-wall is unable to force the urine out through the obstructed meatus, and gradually there develops a residual urine, the man having always in his bladder a certain amount of urine, varying from a few drams to a number of ounces, which he cannot expel. Whenever this residual urine reaches the amount of 100 grams the urine backs up into the ureter and accumulates in the pelvis of the kidney. This damming of the urine back against the kidney causes faulty elimination, and, sooner or later, the man shows constitutional symptoms of renal inefficiency.

As the constitutional signs of renal inefficiency begin to show themselves, these men begin to complain of disturbances in both the stomach and the intestines. They are the chronic dyspeptics who are found in every community. The appetite varies, being at one time abnormally large and at another time almost entirely lost. They may complain of long-standing, obstinate constipation or of diarrhea, or of diarrhea alternating with constipation. The throat and mouth are dry, and the tongue is brown. They complain of abnormal thirst. The urine in these cases is of low specific gravity and is passed in abnormally large amount, three to five thousand grams being passed in twenty-four hours. The urine itself has the same characteristics as in interstitial chronic nephritis; therefore, if studied alone, it leads one to a wrong diagnosis. Why chronic renal inefficiency, due to the damming back of the urine against the kidneys, produces chronic uremia, which marks itself by a disturbance of the digestive system, instead of giving

the symptoms of ordinary chronic uremia of Bright's disease, has never been explained.

The local symptoms of the local disturbances of which these men complain are practically nil. They may have the frequent urination that indicates the beginning of the ordinary enlargement of the prostate, and, in addition to this, an indescribable feeling of weight or a slight discomfort in the lower part of the abdomen. This is particularly true in case the bladder has remained free from infection. These men complain of a progressive loss of strength, for which they can give no reason.

Physical examination of these patients may show only a distended bladder which reaches above the pubis, and palpation through the rectum shows an enlarged prostate. This prostate does not need to be of enormous size to produce a large amount of residual urine. I have removed a prostate weighing 150 grains which caused residual urine to the amount of 38 ounces. It is the position of the tumor, rather than the size, that brings about the symptoms. The diagnosis is made positive by the introduction of a catheter, the patient having first been allowed to empty his bladder as nearly as possible.

The treatment of these cases is relief of the back-pressure on the kidneys, either by the judicious use of the catheter or by the removal of the prostate by operation.

PELVIC CELLULITIS*

By Frederick Treon, M. D.

CHAMBERLAIN, S. D.

The history of this trouble presents an example we sometimes find repeated in medical literature, where a subject was once understood, subsequently overlooked, and then entirely forgotten. There is but little doubt that pelvic cellulitis was understood and treated in the second century by Archigenes, whose account of it was repeated in the fourth century and again in the sixth by the gynecologists of those times. The next account of it is by Richard Wiseman, in 1679, who described it as "Distemper of the Uterus in Childbed." Then Puzos of France, in 1743, treats of a similar malady. Bourdon, in 1841, mentions it as a "fluctuating tumor of the pelvis." Two years later Doherty of Ireland described and called it "chronic inflammation of the appendages of the uterus." Churchill, the same year, 1844, referred to it as "abscess of uterine appendages."

Thus we see that, after being appreciated, it was entirely forgotten, and, after being brought into notice a second time, the knowledge of this trouble languished for nearly two centuries, to be suddenly revived by the investigations made during the forties of the 19th century. Perhaps no other malady has been treated under more names, but *pelvic cellulitis* is the one generally adopted, and it is described as an inflammation of the pelvic cellular tissue, which may or may not result in abscess-formation. The function of the pelvic cellular tissue should be remembered, serving, as it does, to fill in the empty spaces between the pelvic organs, and to connect the underlying organs with the peritoneum, also as a sheath for the blood and lymphatic vessels, and, finally, as ligaments to hold the various organs one to the other and to the surrounding bony structure. In short, it is freely distributed through the pelvis, forming the loose framework in which lie the organs of this region.

The denseness of the tissue varies. In places there is a distinct thickness, forming what has been called by some a species of curtain, which divides one portion of the pelvis from another, and this tends to localize infection to one part of the pelvis. These curtains, or septa, are quite difficult to demonstrate by dissection, but their relations may be shown by injecting them with some material that will harden. By this method three main divisions may be found to occupy each side of the pelvis: First, the anterior region comprises the cellular tissue around the bladder and that lying anterior to the cervix; second, the next region is bounded anteriorly by the first and a second curtain which extends from the uterus outward along the infundibula-pelvic ligaments, and includes practically all of the connective tissue lying in the fold of the broad ligament and continuous with the cellular tissue filling the iliac fossa. The third or posterior area surrounds the rectum and is continuous with the cellular tissue of the retroperitoneal area.

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Infection of the cellular tissue is always due to the attack of one of the pathogenic bacteria, through a wound or by lymphatic infection, or by a direct extension from an inflamed tube or other pelvic structures. We divide a cellulitis into a primary or secondary form. In the first the cellular tissue is invaded directly by the disease-producing bacteria, generally through a tear or wound in the cervix or uterus, or by direct lymphatic extension. In the secondary form the seat of infection primarily is the tube, ovary, bladder-wall, or rectum, the cellular tissue being invaded by continuity. The primary form is the rarer of the two.

Wounds of the cervix are rare, except that of childbirth, and this is by far the most frequent etiological factor in primary cellulitis, the bacteria being introduced by unclean fingers, and advancing directly to the tissues. I regret to say that punctured wounds made in the cervix or uterus with various instruments, often in the hands of women who are anxious to rid themselves of a conception, is by far too often the cause of a primary cellulitis. Dr. Dudley says: "As to the feature of the causation of uterine puerperal sepsis, the primary cause is always an external infection, and so long as this does not obtain, no matter how much placenta or membranes remain, a puerperal sepsis can hardly occur. Quite the contrary, be the uterovaginal canal as clean as nature would wish it, an unclean hand or instrument introduced would be the most prolific source of a virulent infection."

Secondary cellulitis is frequently traceable to an infected tube, the result of gonococci alone or associated with other bacteria or cocci.

It is the primary form, however, to which I desire to direct attention. In the primary the symptoms are usually well marked, but sometimes they are relatively slight and may give the patient but little pain. We may have the simple traumatic form or a septic form. Both are due to infection with bacteria, but in the first simple bacteria of putrefaction are at work; in the second we have to deal with specific pathogenic bacteria, whether puerperal or non-puerperal. The traumatic extends in the loose connective tissue, following between the curtains of hard connective tissue; the septic respects no boundaries.

Generally three or four days after a labor, or an abortion, where careful asepsis has not been observed, the patient will have a distinct chill, the temperature rising to 102° F. or 104° F.; complains of general malaise, headache, and possibly nausea, with an acute pain in the lower abdomen, usually located on one side or the other. An examination reveals considerable muscular spasm present. In the vagina a sense of resistance is found at the base of one or the other broad ligaments; the uterus is more fixed than ordinary; and the patient complains of extreme pain when pressure is made on that organ or upon the lateral fornices. After a day or two a distinct induration can be felt through the vagina, and on bimanual palpation a mass will be felt in the broad ligament. In some cases this indurated mass can be detected above Poupart's ligament as a dense, hard tumor, and might be mistaken for an extra-uterine pregnancy.

CASES.

CASE 1.—On January 10, 1909, I was called in consultation to see Mrs. W., aged about 36, who had miscarried at the second month. There was the usual history: temperature, 102° F.; pulse, 110; the patient was blanched, and was vomiting everything she took into the stomach; there was pain and general tenderness over the abdomen, with a beginning peritonitis. The attending physician, the second one in the case, said he had used an auger curet on the patient. The os uteri was dilated and flabby. We washed out the womb and gave a nomal saline enema, but the condition was bad and the prognosis exceedingly grave. Dr. Bobb saw the patient later, and, I believe, opened up the abdomen and drained off a lot of pus. The patient lived only a few days.

CASE 2.—On January 20 of the same year I was called in consultation with the same doctor to see Mrs. M., aged about 40, the mother of a dozen children. This attack of cellulitis followed childbirth. The patient was in much the same condition as in Case 1, with an added phlegmasia alba dolens. The labor that took place ten days before was accounted normal. Temperature, 102° F.; pulse, 120; the patient's condition was critical. I think Dr. Bobb also saw this case, which went on to a fatal termination. I learned later that erysipelas was prevailing in that neighborhood, and the primary infection might have been traced to that source, or it is possible that a puncture may have resulted in the first case from the use of the auger curet; and the second case, in either event, might have been infected by the transmission of the bacteria from Case 1, through the medium of the attending physician.

CASE 3.—On November 4, 1911, I was called to see Mrs. S., a medium-sized brunette, aged 30; mother of one child, aged 9; suffering with pain in region of left ovary, radiating to the rectum; had had a chill; temperature, 102°; pulse, 110. She said menstruation had not been regular, but did not believe she was pregnant. Claimed she had never miscarried and was not trying to avoid conception. A bunch in the left broad ligament could be plainly felt, and extra-uterine pregnancy was feared. Although the patient was menstruating there was no dilation of the os. Towards evening the patient grew worse, and as it was feared that surgical

treatment might be indicated, consultation was advised; but we thought best to wait twenty-four hours before deciding. Next day the belly became tympanitic, and a general peritonitis followed. The patient was given hot abdominal packs, a saline catharic with small doses of quinine, and one-fourth grain of morphia. By noon the temperature became subnormal, and the pulse weak and rapid. Gave normal saline solution by drop-method per rectum, with hot vaginal alkline antiseptic douches every three hours.

The tenesmus in the rectum became so aggravated that the hot saline solution was discontinued. There was no odor at any time from the menstrual flow, which kept up, but on the third day the patient passed some shreds that looked like the remains of an after-birth. On the fourth day the patient showed a slight improvement, which continued, and after a week the temperature and pulse became normal, and the lump in the left side became smaller. The patient was given vaginal glycerine tampons and the side painted with iodine. Recovery was complete.

Case 4.—Mrs. G., aged 28, gave a history of venereal disease, and had been having chills for four days; temperature, 103.5° F.; pulse, 110; was delirious; husband said she had not menstruated just right for two months. There was a foul odor from the vagina, and tenderness on the right side and over the womb.

We took this patient to the sanitarium. An examination the next day revealed the os uteri dilated, and on account of the bad history and her mental condition we decided to empty the womb, which was done, delivering a decaying fetus. The womb was packed after a thorough cleaning. The patient made an uninterrupted recovery.

While perhaps these cases do not present any new features, yet this fact is emphasized, every one of them should be taken in hand early and under all conditions treated surgically clean. There should be no apology for carelessness or ignorance along that line in this day and age, and human life should not be sacrificed on the altar of careless uncleanliness.

THE PRESENT STATUS AND INDICATION FOR ABDOMINAL CESAREAN SECTION*

By H. I. King, M. D.

Aberdeen, S. D.

With due consideration, it becomes very apparent that the Cesarean operation does not occupy its proper position in obstetrics. I sincerely believe that there is no operation that gives so great reward and is so worthy of discussion as Cesarean section today, and that there is no other operation that offers such a result in reducing the death-rate and morbidity in the various conditions for which it is indicated.

To reflect light upon the present status of the Cesarean operation I cannot do better than refer to the opinions of men you know are familiar with all phases of the subject. Dr. Charles S. Bacon says that Cesarean section is undoubtedly an operation that is growing in favor with all progressive practitioners of medicine; that the value of the life of the infant is being recognized more than formerly; that the danger of forceps in contracted pelvis is more appreciated; and that the importance of examination and measurement of the mother in early pregnancy is more recognized. Dr. J. B. De Lee says that Cesarean section should have a wider field and should replace many of the brutal forceps and version operations. Dr. J. Clarence Webster says that Cesarean section is an operation that is bound to occupy a more prominent place in the future than it has in the past, as there is a marked tendency to extend the indication for its performance; that, in expert hands, patients will no longer be subjected to the destructive operation on the child, providing the latter is living, nor will high-forceps delivery be attempted where the risk of killing the child is great and injury to the mother certain. Dr. Miles F. Porter says that, generally speaking, there are at the present time too many so-called obstetric operations as high-forceps, versions, and so forth, and too few Cesarean sections.

I could cite you an almost endless list of authorities, all of whom express the same thought, which is, that Cesarean section should occupy a more prominent place in obstetrics in the future than it occupies at the present time. The indications for Cesarean section should be broader and should overlap many obstetric operations which are followed by so great a sacrifice of infant life and are productive of so large a maternal and infant morbidity.

Before picturing the indications for abdominal Cesarean section, as I believe they should exist today, let us first briefly review the history of the indications as they existed a little over thirty years ago, and note the gradual loosening

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of the iron-clad laws which confine the indications for the operation to those cases in which it was impossible to deliver even a mutilated infant through the natural passage. The maternal mortality at this time was close onto one hundred per cent, and the operation was, naturally, one of last resort, being performed only for the radical indication, which consisted of a contracted pelvis with a conjugata vera between three and five centimeters.

Shortly before the time of Sänger there was considerable dispute among authorities regarding a relative indication for Cesarean section. The mortality of the operation of embryotomy and Cesarean section were already beginning to be paralleled, and authority began to look favorably to the latter operation. Boudeloque admitted Cesarean section in cases with a conjugata vera of six and three-tenths centimeters. Farnier gave five centimeters, Depond suggested from 3.8 to 6.3 centimeters when the child was living and under 3.8 when dead. But it was left for Stolz to first advocate Cesarean section whenever there was a living child.

Following this period came the conservative operation of Sänger in 1882, which is, in fact, the starting-place of the Cesarean operation. Previous to this time the maternal mortality ranged from 50 to 100 per cent, and shortly following the improved technic it dropped to 25 per cent according to the 135 cases collected by Caruso between the years of 1882 and 1887. Consequent to the great reduction of mortality the indications for the operation rapidly extended, and it was in 1887 that Lusk declared Cesarean section preferable to embryotomy even with the conjugata vera of 6.3 to 7.6 centimeters, and Robert Barnes, who a few years previously had published the statement that there was no election between embryotomy and Cesarean section, and that the law was clear and definite in favor of embryotomy, came forth with a statement that we are no longer permitted, without ample proof and clear necessity, to sacrifice the child to save the mother, and that the cases in which the lives were supposed to stand in antagonism are vanishing before the light of modern science and skill.

The marked improvements in the results of Cesarean section during a few years following the Sänger operation can be easily understood when a man like Barnes will change from one extreme to the other.

As marked as was the advance of the operation at that time, I believe that the reduction in the mortality of the operation during the past decade is tenfold that following the Sänger technic. The technic of the operation has been modified and many useless and shock-producing features omitted. The indications are becoming clearer, and the operation is attaining a position of election, instead of being an operation of last resort—a dumping ground, so to speak, for those hopeless cases after all other methods of delivery have failed. However, the operation has not yet attained the prestige that it well deserves. In looking over the reports of Cesarean sections during the past ten years we find that the cause of death in over two-thirds of the cases is due to prolonged and neglected labor, to failures in attempts to deliver by forceps, version, etc., to late cases of eclampsia, placenta previa, accidental hemorrhage, and infection, so that the mother comes to the operating-table in an almost dying condition.

In the 104 cases reported by Asa B. Davis, of New York City, between the years of 1902 and 1911, there were fifteen maternal deaths, five of whom had long been in labor and were subjected to more or less severe attempts at delivery before coming to the hospital. All were infected, and in two the streptococcus was found in the vaginal discharge previous to the operation. Three of the fifteen deaths were in cases of eclampsia, all in desperate condition, one being moribund and dying on the table. Two of the mothers were dying as the result of pneumonia and meningitis, the operation being done with the sole intent of saving the child. One case was a central placenta previa, which was treated by packing outside of the hospital, the patient dying on the seventeenth day from sepsis. The causes for the remaining four deaths were as follows: The first was due to shock and hemorrhage resulting from atony of the uterus. The patient had had two previous Cesarean sections, and the musculature of the uterus was poorly developed, bleeding was persistent after the operation, and the patient succumbed the second day. The second was due to acute dilatation of the stomach. The patient took the anesthetic very poorly and died thirty minutes after the operation, a condition that might follow any surgical operation. The third was due to septic endometritis. The patient was of poor mentality and physique, filthy habits, became infected, and died the thirty-fourth day after the operation. The fourth patient was dismissed on the sixteenth day, at which

time a culture from the uterine cavity showed the colon bacillus. Two weeks later the patient was readmitted with the diagnosis of septic metritis. Hysterectomy was performed and the patient died ten days later. Again, Dr. T. Mitchell Burns has had thirty-six operations between 1902 and this date in which there was one maternal death and seven infant deaths. The maternal death was a case in which the mother was moribund from the effect of tubercular meningitis, dying in convulsions one-half hour after the operation, the operation being performed to save the child. The seven infant deaths were in the following cases: First, placenta previa with repeated hemorrhage before and after packing. The infant died the sixth day. The second was premature detachment of placenta, the child dying the fourth day. The third was a flat pelvis, the patient being in labor forty hours and high forceps having failed in the hands of three different operators. The child was found dead. The fourth case was a fibroid tumor, the child dying in twelve hours, probably premature. The sixth and seventh cases were seven months' pregnancies. Although the infants were known to be premature, the mothers' condition demanded operations.

From the foregoing reports it certainly does not seem justifiable to lay all these deaths at the door of Cesarean section. I have collected reports from various operators, in which the cases were probably more of the elective type. Dr. J. B. De Lee has had forty-six operations for a great variety of conditions, mainly contracted pelvis, with two maternal and one infant deaths, none of which, he states, had really anything to do with the operation. Dr. Charles B. Reed has had ten cases, all for contracted pelvis, with no deaths. Dr. J. H. Carstens, of Detroit, has had fourteen cases, all indicated by deformed pelvis, without a death. Dr. John Ashan Polack, of Brooklyn, has had sixty-seven operations with no maternal or infant mortality. Dr. E. M. Price, of New York, has had fourteen operations with the loss of one woman, on whom the operation was a last resort in a severe eclampsia.

Judging from the foregoing reports of cases, when the operation is performed under favorable circumstances, the mortality of Cesarean section, *per se*, is less than one per cent, and when performed as a last resort in such grave conditions as infection, eclampsia, placenta previa, and accidental hemorrhages, the mortality is surprisingly small.

As compared with the splendid results following Cesarean section, let me call your attention to an article by Miles F. Porter, in which he compiled the mortality and morbidity of the various obstetric operations of fifteen authors, and found that the average maternal mortality resulting from forceps, version, induction of premature labor and expectancy to be 1.14 per cent, with an infant mortality of 17.3 per cent, a serious maternal morbidity of 42 per cent, and a fetal morbidity of 12.3 per cent, not including fracture of the skull. These are the most conservative figures I have been able to discover. Zinke gave the mortality for forceps, version, and induction of premature labor, the maternal as 10 per cent, and the infant as 50 per cent; and Lizenwitz's statistics show a maternal morbidity of 73.6 per cent. To illustrate the disastrous effect of high forceps in contracted pelvis, I refer you to the infant mortality of 130 cases reported by Dr. Kerr of Glasgow. In a pelvis with a conjugata vera of 7.5 centimeters the infant mortality was 50 per cent; with a conjugata vera of 8.1, 33 per cent; and with a conjugata vera of 8.7, 15 per cent. These figures were so unsatisfactory that the operator ceased using forceps in contracted pelvis with a conjugata vera of less than 8.1 per cent, and he thereby reduced his mortality from 27 to 4 per cent.

From the foregoing reports of the mortality of forceps, version, and premature delivery, one cannot help being impressed with the great sacrifice of infant life, and the future health of both mother and child. Porter says it is not a question of motherless children, but a question of invalid mothers and idiotic children, and he cites Frazier as stating that all children that recover from the immediate effects of hemorrhage almost invariably suffer permanent physical disability, and in 30 per cent epilepsy develops. He also cites Suttleworth as assigning instrumental interference as the cause of idiocy in 29 per cent of the cases admitted to the Royal Albert Asylum. These are certainly startling figures as compared with the results of Cesarean section. Asa Davis says, in speaking of the results of Cesarean section and the foregoing operation, if we choose Cesarean section we shall have little to regret, but we may often wish that we had done a Cesarean section when we see an invalid mother and a maimed child, which conditions we know Cesarean section would have prevented.

As regards the operation of symphysiotomy and premature delivery: Both are only appli-

cable within certain limits of pelvic contraction, and the operations do not eliminate the use of forceps and version, and are often followed by considerable mortality and morbidity.

As to craniotomy: It constitutes an operation that today should never be performed on the living child. As predicted by Barnès, in the light of modern science and skill the antagonism that once existed between the life of the mother and her child is a thing of the past. No obstetrician need pride himself today with the skillful use of the deadly perforator, for the number of craniotomies, high forceps, and versions in the practice of any physician are in inverse proportion to his diagnostic ability and judgment; for, according to Williams, if, after measurement in early pregnancy and careful examination in early labor, we decide that the head will not pass through the pelvis by natural forces or by very gentle traction with low forceps, with perfect safety to mother and child, it is our duty to advise Cesarean section, providing the facilities can be obtained, and I dare say that, with the present day surgical technic, asepsis, and increased educational requirement, there is hardly an area of fifty miles where proper facilities may not be had.

The old excuse for craniotomy is that the mother has been in labor a long time, and is exhausted and infected. Gentlemen, if these cases were properly diagnosed and properly advised, there would not be long labors with infection and exhaustion from many futile attempts at delivery. But, notwithstanding, I do not believe that infection, protracted labor, and exhaustion are indications for craniotomy. I believe that under similar conditions craniotomy is as dangerous as Cesarean section. Williams says that there exists a general misconception as to the innocuousness of craniotomy and cites the results of Pinard and Parr, whose mortality was 11.5 and 9.36 per cent, respectively, and I wish to remind you that only a portion of these cases were infected. With one operation as serious as the other, we would naturally choose Cesarean section. If the mother's life is at hazard by infection and exhaustion it seems to me that that in itself would be an indication in favor of the child. And as to the simplicity, rapidity, and less shock-producing operation, I do not think you will doubt me when I say that Cesarean section comes first.

Before closing my paper, allow me to give a summary of the indications as I believe they should exist today. Generally speaking, Cesarean section is indicated in all conditions where there is an obstruction to labor which may not be overcome by natural forces or by very slight traction with low forceps. Such indications may be divided into three classes:

First. Those consisting of obstruction due to the passage which constitutes the pelvis and adjoining soft parts of the mother, such as contracted pelvis, tumors, atresia of the vagina, etc.

Second. Those in which obstruction is due to the passenger, as large head, bad presentation, etc.

Third. Those in which the obstruction is relative to the time required to conserve the best interests of mother and child, as in eclampsia, placenta previa, premature detachment, death of mother, etc. It would be needless for me to outline the many indications under this heading, and I shall now report my cases.

CASE I

Mrs. L. F., aged 34, height 5 feet 1 inch, weight 100 pounds, has a congenital dislocation of the right hip with a shortening of the right limb of from two and one-half to three inches; otherwise always well; married eight years; has had four children; all dead with the exception of the last which was delivered by Cesarean section.

First birth.—Mother in labor eighteen hours, child weighing five pounds, removed by high forceps, lived eight months, and died of marasmus. Mother said child was never well from birth, had a weak back, and could not turn from side to side, a condition probably due to injury at birth.

Second birth.—Patient in hard labor five hours, doctors saw the child could not be born, did a podalic version, but were unable to extract the after-coming head, which was removed with forceps. Child weighed nine and one-half pounds and was born dead. Mother was badly lacerated and suffered from infection, remaining in bed four weeks.

Third birth.—Severe labor for twelve hours, ending in version with forceps on the after-coming head. Child weighed seven pounds; stillborn.

Fourth birth.—A Cesarean section; mother and child living and well. Patient was in labor one-half hour. Cervix was dilated three fingers, bag of water was ruptured, head not engaged. There were marked retractions of the uterus. There was an irregularly deformed pelvis, with a conjuga tavera between two and one-half and three inches. The patient received chloroform in her room until unconscious and was then immediately taken to the operating-room, where the anesthetic was changed to ether.

Preparation.—The patient received a bath on entering the hospital; vulva and vagina properly cleansed before entering the operating-room; abdomen was prepared by the application of tincture of iodine followed by shaving and the usual scrubbing and antiseptics. The usual technic was employed; the incision was median, in-

cluding the middle two-quarters of the distance between the umbilicus and symphysis then extended upward as necessary; uterus promptly delivered and walled off by sponges; two-thirds of uterine wall punctured with knife; fingers pushed into cavity and longitudinal incision made with scissors. In this case the placenta was attached to the anterior wall at the line of the incision, and in the attempt to deliver the fetus and quickly clamp the cord the placenta was lost, but was immediately discovered outside the abdomen. The uterus was sutured with three layers of chromic cat-gut. The abdominal womb was closed in the usual manner. The time required to complete the operation was twenty-minutes. The mother did not know that a Cesarean section was done until the third day after the operation. During the stay in the hospital the puerperium was uneventful. The temperature was not over 99°; and the pulse, not over 90.

The patient was discharged on the fourteenth day with her baby, and she drove forty miles to her claim when the thermometer was below zero.

CASE II

Mrs. J. D. B., aged 34. Normal labor 7 years ago. When 7½ months pregnant, bag of waters ruptured. There was occasional pain for 2 weeks, and she was in hard labor 48 hours before entering hospital. Examined by two physicians in the country, both of which made attempts at version. When entering the hospital, patient was exhausted. Pulse 110, temperature 99.6. Dilitation of cervix almost complete. Right shoulder presentation, uterus in constant tetanic spasm, which could not be relieved by chloroform. Fetal heart tones very rapid and feeble. No further attempts made at version for fear of rupturing uterus. Cesarean section performed in usual manner. Ether anaesthetic, the time required to complete operation was 22 minutes. The uterus bled very freely and was difficult to keep contracted and we were unable to obliterate its cavity and therefore the uterus was packed with gauze, one end of which was pushed into the vagina. The gauze was removed per vaginum after 12 hours. The uterus was infected and drained for 8 weeks, at which time, the patient left the hospital in good condition. The child was premature (8 months). Lived three months and died of intestinal infection due to artificial feeding and lack of care after leaving hospital.

THE SIGNIFICANCE OF PUPILLARY INEQUALITY*

By John M. Robinson, M. D.

DULUTH

Inequality of the size of the pupils, technically known as *anisocoria*, is regarded as an incident in the science of medical signs rather than as an actual indication of disease; and, still more often, the lesser degrees are looked upon as mere physiologic variations. Fuchs, however, in the best of text-books on ophthalmology, twice states that all pupillary inequalities are pathologic, while recently Bychowski has set forth, in an exhaustive article, his views that anisocoria ought to be regarded much more frequently as a consequence of central or peripheral irritation or paralysis than as a mere congenital anomaly.

The text-books on general diagnosis and eye diseases give to this matter at most but a passing paragraph. When the writer was a student aortic aneurism always came to his mind when unequal pupils were mentioned. This from a vivid lecture by Osler. Once on a time the neurologists adopted this sign as their particular own, and for awhile gave it a front seat; more recently, in diagnostic discussions, it has been relegated to the rear.

To obtain for himself some first-hand information as to the actual frequency of this condition, the writer during the past winter carefully inspected the pupils of 300 office visitors. About half of these were eye patients; the others were nose and throat cases. Recent injuries and acute ocular affections were excluded. A detectable difference in the two pupils was noted in 30. In a third of this number some visual defect was found in connection with the eye having the larger pupil. In 10 there was good reason to believe that the anisocoria was of extra-ocular origin. In the remaining 10 the subjects were, except for some passing disturbances, generally in good health, had normal vision, and were without evidences of organic disease, which would account for the pupillary inequality, which, however, in these instances was slight.

The anatomy and physiology of the iris may, in so far as they relate to the size of the pupil, be thus briefly reviewed together. Lying close to the margin of the pupil is a circular, non-striated muscular band of about 1 mm. in width, which is known as the sphincter pupillæ. This muscle is innervated by fibres from the third nerve, and by its contraction reduces the size of the pupil. This occurs from overflow impulses during the act of accommodation and convergence, and also on direct irritation, but, above all, through the influence of light. The so-called reflex-light arc commences in certain cells of the

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retina, especially those within 3 mm. of the fovea (Hess), and from there the impulse passes through distinct pupillary fibres, which, with the rest of the optic nerve, undergo partial decussation at the chiasm. From this cross-road the fibres pass along the optic tracts, winding about the crura cerebri, finally to terminate beneath the four little hills, the corpora quadrigemina. From this point, the nucleus of the motor oculi, the centrifugal fibres pass forward through the third nerve as far as the apex of the orbit, where

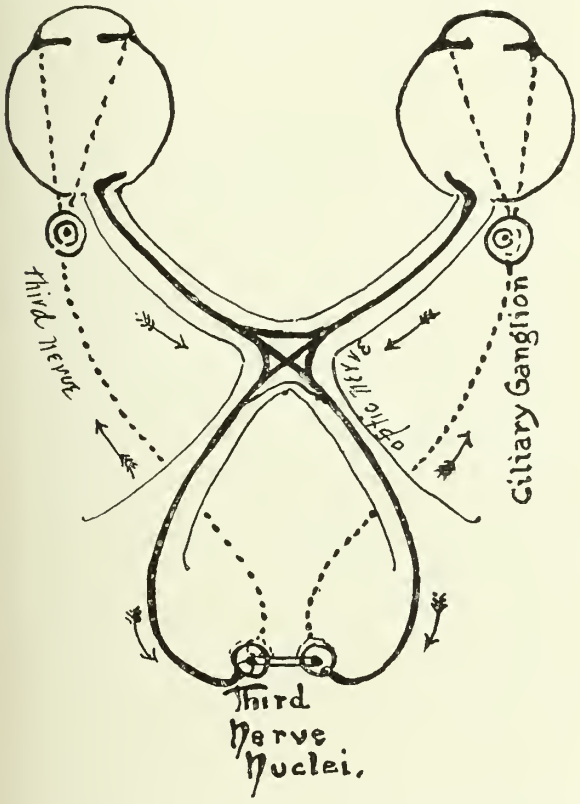

Fig. 1. The dark lines show the path of the centripetal impulse from the retina to the third nerve nuclei. The dotted lines show the contraction-impulse back to the iris via the third nerve. Theoretically, to affect the pupil only the lesion must lie in the latter tract.

they are now switched off into the ciliary ganglion, and from there go on to the iris by way of the short ciliary nerves. Now, as these first-mentioned fibres decussate at the chiasm, and also probably connect one side with the other at the third-nerve nuclei, it follows that, under normal conditions, when light is thrown into one eye only, both pupils contract equally. This is known as the consensual reaction. Even though one eye is blind, and the nerve apparatus here referred to is intact, light received into the sound eye will cause an equal contraction of both pupils. Eventually, however, the pupil of the defective eye is disposed to become larger than the other. Obviously, if there is an irritation of the fibers in the third nerve there is a contraction of the corresponding pupil; and if there is a cut-off, by inflammatory product or degeneration, then the pupil becomes larger. Absence of the light reflex may possibly depend more upon involvement of the nerve-center or the ciliary ganglion. The reflex arc is diagramatically shown in Fig 1.

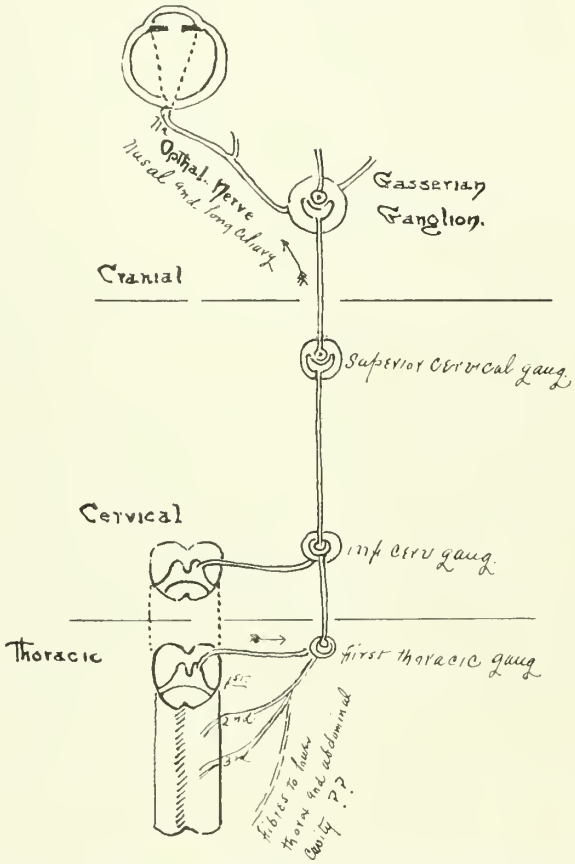

Fig. 2. This diagram shows the tract of the dilator impulse from the cord to the iris. (Modified from Bach.)

For some years there was much dispute as to whether the pupil possessed an active dilator apparatus. It was contended that the pupil dilated through its own elasticity; that the distension of the blood-vessels, of which the iris is so largely composed, might determine its breadth; or that the sympathetic acted only as an inhibitory nerve. But it is now generally admitted that the layer of spindle cells in the posterior part of the iris has a truly muscular function, and that it is innervated through the cervical sympathetic. This dilator impulse arises in the

anterior cornua of the lower cervical and upper dorsal cord, from which location it is emitted through the eighth cervical, and first, second, and third dorsal nerves. There is a way-station at the first thoracic ganglion, another at the inferior cervical; but the important switching-point is the superior cervical ganglion. From here the impulse travels to the carotid plexus; thence to the Gasserian ganglion; then out by the superior division of the fifth, through its nasal branch to the long ciliary nerves; and here endeth the roundabout route from the spinal cord to the iris. Irritation of the fibers of this tract, by pressure or otherwise, is followed by dilatation of the corresponding pupil. Clinically, the difference so produced between the two pupils is often very slight. A complete paralysis of this nerve would, of course, be followed by myosis.

Pupillary inequality from ocular defects.—While it is true that under this heading many causes of anisocoria will properly find place, yet, as a very general rule, some disturbance of the vision, usually showing itself in the eye with the larger pupil, will be found on applying the ordinary, simple tests. One pupil may be slightly contracted from an irritation of the cornea or conjunctiva. In iritis the pupil is small, except sometimes in the serous form of the disease; on the other hand, dilatation is one of the important signs of glaucoma. For a time after one eye begins to lose its sight from extensive disease of the retina or optic nerve, the consensual action of the two pupils tends to maintain their equality of size, but eventually the pupil of the affected eye is likely to become larger than its fellow. Atrophy of the optic nerve, secondary to an inflammation, is much more likely to be attended by an enlarged pupil than the primary form. As a rule "choked disc" results in some dilatation at an early stage, this probably being due to some extent to the accompanying intra-ocular and intra-cranial pressure.

Contrary to the somewhat vague impression, a difference in the size of the pupils is only occasionally to be ascribed to a difference in the refraction of the two eyes. H. Fraenkel, having carefully reviewed the findings of numerous writers, came to the conclusion that no regular relation exists between the two conditions. Bierhoff studied 188 cases of anisocoria, and attributed only 6 to a difference in the refraction of the two eyes.

The writer has noted this phase of the question in 400 "refractions," and in only three or four instances was there reason to believe that a difference in the size of the pupils depended on unequal refractive error. Myopic eyes, however, usually show relatively large pupils; and where only one eye is near-sighted, or one is much more myopic than the other, then it not infrequently happens that the weaker eye will have a larger pupil. Thus in 12 such cases examined 5 showed a distinct difference in the pupils.

A blow on the eyeball is often followed by temporary palsy of accommodation and dilatation of the pupil, both of which usually pass away in the course of a few days. But there occasionally occurs a minute tear in the sphincter muscle, which is followed by a permanent dilatation, but with no disturbance of sight. Such cases furnish an exception to the rule, that anisocoria due to ocular defect is accompanied by reduction of the vision, nearly always in the eye with the larger pupil.

Physiologic inequality.—Whenever one sets forth to extol this sign under discussion as evidence of internal disease, he is met with such statistics as these: Schauman and Fraenkel found slight differences in the pupils in from 4 to 19 per cent of a large number of healthy school-children and medical students; Felton, in 28 out of 61 healthy individuals; and Ivanow, in 91 per cent in two companies of young Russian recruits. The latter observation has been somewhat copied as a foot-note in several text-books, but is now rather ancient, and probably untrustworthy. It is, however, true that by means of exact laboratory instruments an otherwise undetectable differance can be found in a proportion of from 10 to 25 per cent among healthy persons. And by close inspection, without instrumental assistance, a slight difference can be made out in from 3 to 8 per cent. But such differences in the diameter of the two pupils are rarely more than 0.5 or 0.75 mm.

With the kind assistance of Dr. Schroder, one of the medical inspectors of our Duluth schools, 300 children were examined who were in regular attendance in severe midwinter. Among these were found 23 who showed slight, but easily detectable, pupillary inequality. These children were then gone over with reference to the condition of their "refraction," the possible presence of enlarged cervical glands, evidences of tuberculosis or hereditary syphilis, etc. But in all but three or four the results were negative. We put down 6½ as the percentage of physiologic pupillary inequality in this group. It may be added

that two of those who showed anisocoria were sisters; and two others showed a noticeable difference in the shade of the two irides. This latter coincidence I have noted in two other instances. It suggests an anatomical origin for the inequality. Bach also states that he has several times noted anisocoria in more than one member of the same family, and also in two successive generations.

Cerebral lesions.—In the matter of diagnosis and localization of cerebral hemorrhage, tumors, etc., pupillary inequality seems to be little more than suggestive. If there is a pronounced difference in the two pupils, with miosis, or palsy of the pupil on one side, it may be assumed that the lesion lies in, or close to, the path of the third nerve; but there are disturbances which appear to produce inequality far removed from this locality. Irritation of the cortex produces dilatation, and Parson says that the wider pupil may be on the opposite side. In passing, it may be noted that purulent and cerebrospinal meningitis are more likely to be attended by contraction of the pupils; whereas, in meningitis with effusion, usually meaning increased pressure, the pupils are prone to be dilated. It is so in many cases of tubercular meningitis.

One looks, too, but without much satisfaction, for something in this symptom which might be of value in the matter of distinguishing actual brain injuries from traumatic neuroses. Under the latter heading Bach states that he has several times observed inequalities, but is not inclined to give the anisocoria much weight, unless there is an alteration in the light reflex of one or both pupils, in which latter case there is most likely an organic lesion.

Hysteria.—Hysteria, imitating in its symptoms so often the signs of organic disease, occasionally produces pupillary inequality. This, of course, is usually but a temporary change, although De-Schweinitz and Spiller have reported a case where a marked difference lasted indefinitely.

In neurasthenia this condition is rarely noted, although "unrest" and enlargement of the pupils is common.

Neuralgia.—Under this heading come a number of painful affections, which may act in a reflex way back to the Gasserian ganglion, and thence to the sympathetic, to set up more or less enlargement of the pupil on the affected side. The pain may even seem to be in the eyeball and the pupil somewhat dilated, and yet the source of irritation be some distance away, the eye actually being quite free from trouble. Under bright illumination the pupillary difference in migraine usually disappears, which is a point of some diagnostic importance. It seems reasonable to suppose that by this same route act diseased teeth, which are mentioned in some of the textbooks as a cause of anisocoria. In various other painful affections of the head and face one pupil may, in the same way, become temporarily enlarged. Occasionally, during the course of middle-ear inflammation this occurs, giving some alarm with the arising suspicion of meningeal involvement. The attention of the writer has been called to three or four instances of this kind occurring in children, where there was no further serious trouble, nor other evidences of meningitis.

Disturbance of the cervical sympathetic.—Following this nerve from above downward we find that pressure from enlarged cervical glands occasionally accounts for pupillary inequality, and, still more frequently, simple enlargements of the thyroid. In 16 cases of the latter 7 showed pupillary difference. Not infrequently the larger pupil is on the side showing the less protrusion in the neck. In one instance the writer was consulted solely because of the noticeable anisocoria, which disturbed the mind of its possessor much more than did the moderate enlargement of her thyroid gland.

In the matter of Graves' disease Hartman, in reviewing the statistics of a large number of observers, found that anisocoria was noted in only 4 per cent, a rather remarkable finding since so many other ocular signs, traceable through the sympathetic, occur in this disease.

Further down aneurism of the carotids and aorta, tumors of the upper thorax, and cardiac enlargements may produce, in the same way, more or less difference in the diameter of the two pupils. And either from pressure or irritation of the nerve-endings, the same phenomenon is sometimes seen during the course of pneumonia and pleurisy.

Signorelli, writing on the subject of pupillary reflexes arising in the viscera, says that in splenic enlargements the right pupil is usually found to be larger than the left. It has been vaguely suggested that certain unilateral pelvic lesions might produce reflex dilatation of the corresponding pupil. Such does perhaps sometimes occur in acute affections of the lower abdominal cavity, but in the case of a woman the thyroid region

should first be investigated. Syphilis must always come up for exclusion.

Pulmonary tuberculosis.—Within a comparatively recent period several observers have called attention to the frequent occurrence of unequal pupils in this disease. Pernot examined 1,140 cases in various stages, finding among the advanced 14 per cent, and in the early cases 8 per cent. Brown of Saranac Lake found 15 with unequal pupils in 181 cases of early tuberculosis. Fodor of Vienna thinks that where only one lung is involved the pupil on the corresponding side is likely to be larger than its fellow, and that also on careful examination the reaction to light will be found to be relatively sluggish. Tuechter recently reports three cases, in two of which a radiographic examination showed enlarged bronchial glands on the same side as the enlarged pupil; and in the third case the same relation was demonstrated post mortem. From these findings he is led to the opinion that the pupillary inequality in tuberculosis is due to pressure on one side by swollen bronchial glands, and that the sign is of importance in incipient phthisis.

The writer examined the eyes of 50 patients known to have pulmonary tuberculosis and found 12 with unequal pupils. The difference was, however, in no instance very noticeable, each less than a millimeter; and the patients, it may be added, were all somewhat advanced in the disease. While this series was being studied three office patients came under observation, each having some moderate nasal or pharyngeal disturbance, and each showing a slight inequality of the pupils. Two had some cough; the third was of rather "spare habit." These three patients were referred for a chest-examination; but the results were all entirely negative, and each was in good health at the end of six months. Presumably these were only instances of "physiologic inequality." Nevertheless the sign may be regarded as of some value as inviting attention to the chest. Especially in children may a noticeable inequality which persists give some reason to suspect enlargement of the bronchial glands. Now and then a tubercular swelling may produce very wide dilatation of the pupil. A unique case has been reported by Coppez in which mydriasis was changed into myosis by bending forward the head.

Syphilis.—Returning to the precinct of the third nerve, we find syphilis as one of the most frequent causes of anisocoria. Not infrequently, of course, one sees a widely dilated pupil, with sluggish or absent reflexes and with loss of power of accommodation, total or partial ophthalmoplegia interna. And this condition, when unilateral, is well recognized to be "specific" in origin in nine cases out of ten. But of more interest even, because more easily overlooked, are the not infrequent instances of slight or moderate difference in the pupils, where disturbance of the reflexes is hardly to be demonstrated, where the luetic virus has only slightly disturbed the pupillary fibres, or, more likely, the ciliary ganglion; and it is, as usual, a one-sided affair. Here a difference of a millimeter or so in the diameter of the two pupils may be the only evidence of a serious systemic poison.

CASES

Case 1.—G. S., aged 50, was much afflicted with the idea that he had syphilis, although he admitted that for several years he had had no pronounced evidences of the disease. He had consulted many physicians, some of whom had put him down as a syphilophobic. He gave no history of skin eruption, but complained only of some vague abdominal disturbance; yet one of his several physicians, some years before, had noted an inequality of the pupils, which had now long since disappeared. The patient himself pinned his faith to this finding; and long after, when salvarsan first began to be extolled, he was referred to a distinguished surgeon, who had a Wassermann test made, which was reported positive; and thereupon my patient received the first dose of "606" given to anyone in this immediate part of the country.

Case 2.— A drug clerk who had a year before been under treatment in London for lues, came because the pupils were gradually showing a difference in size. This had occurred before, but had disappeared under treatment. His physician had, however, advised him to watch for a return of the inequality, and, if noted, to resume medication. There were now no other symptoms. A Wassermann had been positive. The right pupil was one millimeter larger than the left, and, relatively, the response to light on this side was perhaps slightly diminished. Salvarsan was given at his own request.

Case 3.—A man developed paralysis of the iris along with a retinitis, six months after an initial lesion. The fundus disease gradually cleared up, and the vision became normal; but at the end of two years the pupil of the affected eye was still much larger than its fellow, al-

though it responded well to light and in accommodation and convergence. The man was a bartender and the appearance of his eye subject to some comment, so that the pupils were kept equal for a long time by means of a weak solution of eserin used in the affected eye. Hansell, in writing on this subject, says that dilatation from palsy of the third nerve is not affected by eserin. As was here done, the contrary can be easily demonstrated.

Case 4.—A young man was under treatment for maxillary sinusitis. Incidentally a difference of not more than half a millimeter in the pupils was noted and commented on; whereupon the patient stated that this had first appeared two years before during an active attack of syphilis. There were no changes in the pupillary reflexes. There had been no general evidences of the disease for over a year.

These slighter pupillary differences occurring from syphilis may be passing or permanent. They may occur early or late; if in the former stage, they do not often indicate central involvement, and they may not even in tertiary lues. One may also get an inequality from pressure from a gumma or from orbital periostitis. Then in late syphilis if, in addition to a difference in the size of the pupils, there is found a diminution in the light reflex of one or both we have a sign of deeper and more dangerous trouble, though the writer has one acquaintance who has carried around a unilateral Argyll-Robertson pupil for ten years, with no other serious evidence yet of tabes; and another occasional patient who has possessed a partial paralysis of the iris on one side, with loss of light reflex only on the other, and this for five years with no other disturbance.

The relation which aortic aneurism and certain cardiac enlargements often bear to one dilated pupil, has already been referred to; and for a long time this was always ascribed to pressure on the sympathetic. Babinski, Rodiet, and others have pointed out, however, that, since there is found to be a loss, or lessening, of the light reflex in some of these cases, the dilatation of the pupil on one side does not always come, by any means, from the nerve-pressure in the chest, but that the aneurism or cardiac disease and anisocoria may arise from a common cause, namely, syphilis. Along this line Braillon reports two cases of mitral disease with hypertrophy, accompanied by noticeable difference in the pupils, the latter not depending on the former, but both being syphilitic in origin. Thus, in various conditions, such as these, may a difference in the size of the two pupils lead to a clue as to the origin of certain organic diseases.

Finally, of the several degenerative diseases of the central nervous system general paresis appears to lead the others in the production of anisocoria. Here the inequality, along with other pupillary changes, often antedates for a considerable period the signs of mental deterioration. A third of the cases probably show this condition at some time during the course of the disease. In tabes the percentage of pupillary inequality is somewhat smaller, perhaps 15 or 20 per cent. The inequality in this disease is usually a slight one, and since the pupils are so frequently contracted slight differences may be entirely overlooked. Disseminated sclerosis, according to Bach, gives about the same percentage.

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CHEMICAL TESTS FOR OCCULT BLOOD*

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MINNEAPOLIS

In modern times as contrasted with even fifty years ago the bulk of the physician's work is directed toward a correct diagnosis. The employment of trained nurses, specific and simplified medication, resort to rest, baths, simple food, and fresh air, and the increasing fund of knowledge and common sense in relation to disease possessed by the general public, have largely relieved the practicing physician of this generation from the heavy burdens which lack of definite knowledge or exact methods and the superstition and ignorance of their times placed on the shoulders of their predecessors. Hence any procedure which gives definite, exact information, which makes a "short-cut" in the final analysis of the case, which substitutes facts for vague surmises or more or less logical guesses, becomes a welcome addition to the working equipment of the busy physician in his daily task of sifting and assorting symptoms, surveying and classifying signs and striving by all possible means at his disposal to gain a correct idea in each particular case of what Musser was accustomed to designate as the "morbid process." In short, a method which helps justify or hazard a diagnosis in an otherwise often hopelessly obscure complaint is of undoubted value. This value is, however, in direct proportion to the simplicity of the technic required and the ease with which the results may be interpreted.

It is to the consideration of one of these methods, viz., for the detection of occult blood, that I wish to invite your attention today. While it is by no means new or unknown to you and even, perhaps, is in constant use by some of you, it may be profitable to briefly review its history, to indicate a few of the more recent improvements in the technic and to emphasize the limits of its accuracy in the diagnosis of disease.

It is certainly unnecessary to further impress ourselves with the importance of being able to detect minute quantities of blood. We all feel able to deal at first hand with gross hemorrhage from the bowels or melena, with hemorrhage from the stomach (hematemesis), or the respiratory tract (hemoptysis), or in the urine (hematuria); but when, in considering the diagnosis of tuberculosis, ulcers, or malignant tumors of any part of the body from which a discharge can be obtained, we are able to ascertain with certainty the presence or absence of such minute quantities of blood as could not possibly be detected by the unaided eye, then we have at our disposal information which is always of value and often proves to be the last link in the chain of accumulated evidence. In the stomach-contents, in the feces, and even in the urine, with the evidence afforded by other symptoms and signs, the presence of even traces of blood is often a most significant factor, and if the test can be easily performed and plainly interpreted, we may no longer be excused for not employing it on every occasion where the negative or positive result can tell us more accurately the exact condition of the patient.

The historical aspect of the subject is interesting and worthy of more consideration than we can afford to give at this time.

To Schoenbein[1] belongs the credit of first calling attention to the fact that ozonized turpentine or hydrogen peroxide will give minute quantities of blood the power to turn guaiacum blue. In a series of papers, published between 1856 and 1863, he gave the results of extensive experiments illustrating the delicacy and also the fallacies of the guaiacum-hydrogen-peroxide test for blood. He believed that this property of blood was due to the iron it contains. Further investigations by Van Deen[2], Day[3], Taylor[4], and others corroborated Schoenbein's work and gave us the test which is largely used at this time. By many the method is still called Van Deen's test, while to others it is known as Day's test, although the essential details were all elaborated by Schoenbein. Three agents were necessary: an oxygen-carrying compound, either old oil of turpentine, ozonized ether, or preferably hydrogen peroxide; freshly prepared tincture of guaiacum, which, in the presence of ozonized oxygen, gives a blue color; and lastly blood or other substance which in some peculiar manner promotes oxidation of the guaiacum. The blood might be old and dried or decomposed, or it might be so mixed and diluted with body excretions that it must be extracted by acetic acid and ether before the test was applied. As the investigation proceeded, the list of substances which could be substituted for

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blood became so appalling that it seemed to many that the test was only valuable when it showed the absence of blood by giving a negative result. For example, it was shown that, among other things, potato, peas, horseradish, carrots, and many other vegetable substances, iron salts, copper, and numerous inorganic compounds, milk, pus, gelatin, and red flesh would all give this reaction. In a list collected by Kastle about 130 substances are mentioned. In many of these, however, it has been shown that their ability to oxidize guaiacum in the presence of peroxide depends upon a ferment called peroxidase, which is destroyed by boiling or heating to 100°, while the heating of blood does not in any way interfere with the reaction. Glacial acetic acid also inhibits the action of these ferments. Hence, when carefully used with a known diet, pure chemicals, boiling of suspected fluids, and with careful controls, even a positive guaiacum test is of considerable value, and a negative reaction indicates the absence of even the minutest traces of blood. The limits of its delicacy vary in the hands of different workers, Adler[5] and Huhenfeld[6] detecting one part in five and six thousand, Weber[7], one in one hundred thousand, and Vitali[8] by a microscopic modification claimed a positive result in one part in one hundred thousand million.

Because of the fallacies which are apt to arise in the use of guaiacum other chromogenic substances have been proposed by various authors. For example, Doebner[9] advised the use of guaiaconic acid, Buckmaster[10] and Einhorn[11] employed aloin, Adler[5] advocated benzidin, Boas[12], paraphenyldiamin hydrochloride, while Deléarde and A. Benoit[13] suggested phenolphthalin, the employment of which finds an earnest advocate in Kastle[14]. The use of aloin, sometimes called Einhorn's test, presents no advantages over guaiacum and has not been widely recommended. In well-equipped laboratories phenolphthalin affords a valuable amount of data because its derivative by oxidation, *phenolphthalein*, can be quantitatively measured by comparing with standard alkaline color-solutions of the reagent. However, the preparation of an alkaline solution of the phenolphthalin containing hydrogen peroxide presents considerable difficulty outside of the chemical laboratory and certainly is beyond the range of the methods which may be employed by the busy practitioner.

The substance which at present is receiving increasingly wider acceptance is benzidin, a compound derived from nitro-benzene and first proposed by Adler, who studied the action of a large number of aromatic compounds that might be used in this test.

The technic of its use is simple. About $\frac{1}{10}$ of a gram of the powder benzidin, or, roughly, the quantity which can be lifted on the end of a penknife, is dissolved in 10 c.c. of glacial acetic acid. The material to be tested is treated as in all the tests, the fluids either being used directly or, as in the case of feces, being triturated with small quantities of acetic acid and water and extracted by ether. To 5 c.c. of the suspected fluid in a test-tube a few drops of hydrogen peroxide are added and then about 2 c.c. of the solution of benzidin. With certain exceptions the immediate appearance of a very dark-green or bluish color denotes the presence of blood. Care must be taken to exclude blood from the diet and outside sources, and the heavy metals and many of their salts, especially copper, will give a positive result. The glacial acetic acid used will inhibit the action of any vegetable ferments or oxidases. The delicacy of the test is about 1 part in 100,000, one author claiming that it varies directly with the chemical purity of the reagent.

Colwell and MacCormac[15] have recently elaborated a method suggested by Walter[16] in 1909, whereby, instead of using hydrogen peroxide, a solution of sodium perborate is employed. This chemical is a white crystalline powder, a stable compound, freely soluble in water, does not deteriorate as rapidly as hydrogen peroxide, and does not give a positive reaction with the iodides.

Their technic is as follows: in the case of liquids (urine, stomach-contents, or liquid feces), take about 5 c.c. and add 5 c.c. of glacial acetic acid; shake thoroughly and add 10 c.c. of ether, and repeat the shaking. As the ethereal extract rises to the top, it can be pipetted off. To make this extract from solid feces a small portion can be rubbed up with glacial acetic acid, 5 c.c. of water added, and the ethereal extract made as described.

In making the test, place 5 c.c. of the ethereal extract in an evaporating dish and by the heat of the hand allow the ether to partially evaporate. Then add 1 c.c. of a benzidin perborate solution prepared by dissolving $\frac{1}{10}$ gram of benzidin and $\frac{1}{10}$ gram of sodium perborate in 10 c.c. of glacial acetic acid. If blood is present, even in the minutest traces, a dark-green or intense blue color appears. The authors confirm Clark's[17] results by finding a positive reaction in the pres-

ence of green vegetables, possibly due to chlorophyl. They recommend a special diet for three days preceding the test, from which meats and green vegetables have been excluded.

In conclusion, we may safely affirm the real value of these simple and easily accomplished tests for the presence of minute quantities of blood. A negative result definitely means the absence of blood; a positive result, if carefully controlled, will certainly lead to a strong suspicion of its presence and point toward, if not directly affirming, a definite cause of hemorrhage.

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PROGRESS IN MEDICINE

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UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

PATHOLOGIE UND THERAPIE DES CARDIALEN ASTHMAS

By PROF. DR. HEINRICH ROSIN

Deutsche medizinische Wochenschrift, Nov. 16, 1912

Professor Rosin defines cardiac asthma as a dyspneic seizure of high grade, originating in diseases of the greater vessels or of the heart, and contrasts such paroxysmal seizures with simple dyspnea of cardiovascular causation.

The characteristic symptoms as enumerated by him are:

1st. The sudden onset of high-grade dyspnea usually occurring at night and entirely without prodromata or with but mild and trivial precursory symptoms, such as precordial or epigastric pressure or a slight dyspnea, which, indeed, often prove false warnings to the over-anxious and excessively apprehensive victim of a previous severe seizure.

2d. The attack itself inspires the terror and sense of impending dissolution so commonly observed in the true angina pectoris of which cardiac asthma is really the respiratory expression. High-grade orthopnea is at once established, together with the spasmodic features of asthma, and not only the accessory muscles of respiration but those of the abdomen are actively employed.

Occasionally a distinct Cheyne-Stokes rhythm is observed. The patient can neither swallow nor speak save in broken, whispered syllables. His expression is anxious or even Hippocratic, his face pale, his body covered with cold perspiration. The pulse is usually rapid, more rarely slowed, irregular, compressible, or even thready, and arterial pressure is sharply lowered, though it may be, and often is, higher than normal in such cases as have previously carried high arterial tension.

Mild attacks may permit auscultation and percussion, which will usually reveal weakened and impure tones and a dilated heart together with some form of arrhythmia.

Pre-existing murmurs may be greatly weakened or entirely lost. The pulmonary physical signs are precisely those of bronchial asthma. The sputum is raised with difficulty, if at all, and when obtained reveals no Charcot-Leyden crystals or eosinophiles.

The peculiar swollen, polynuclear pigmented "heart-failure cells" may be present.

Such attacks may last from one-half to two hours and may cease suddenly and completely, but the patient is usually left weak and pale, and one can usually see after each attack evidence of a progressive increase in the cardiac disability.

In fatal cases pulmonary edema supervenes with intense cyanosis and ultimately coma. Such attacks may be the first indication of cardiovascular disturbance, or they may supervene only after years of circulatory impairment.

Coronary sclerosis is doubtless the underlying ailment in these attacks, as in those of true angina pectoris, of which this is really but a variant.

Similar attacks may accompany advanced interstitial nephritis, myocarditis, and aneurism. The likeness to bronchial asthma is so exact that the most serious and damaging therapeutic errors may be made. The weak, usually irregular and thready pulse is a helpful sign.

Cardiac dulness is usually obliterated in bronchial asthma, and the lower pulmonary segments are hyperresonant. In cardiac asthma the conditions are usually, though not always, reversed. The pallor and Hippocratic facies are more marked in cardiac asthma.

Uremic asthma is less continuous and severe; and indeed usually consists of intermittent attacks of short duration associated with other signs of uremia.

Rosin recommends the free use of camphor, caffein, and digipuratum, but would use adrenalin and morphine only as a last resort.

He believes also that venesection is more valuable than is generally held and less used than the results merit. Free ventilation, a comfortable chair rather than

a bed, and hot applications to the chest are also mentioned.

(No one who has seen the prompt and gratifying results attending the use of morphine in repeated *small* doses will agree that the drug is one of last resort, and in relation to differential diagnosis especial stress should be laid upon the circumstances preceding the onset of dyspnea and a previous history of those subjective symptoms of cardiac weakness which have been so much neglected and misinterpreted in the past.)

C. L. Greene.

GASTRIC ADHESIONS AS A CAUSE OF SUDDEN DEATH

By G. Hamilton Winch, M.B., Ch.B.,

British Medical Journal, July 20, 1912.

The patient, a coal-miner, aged 34, while lifting a large piece of coal into a truck, slipped and fell backwards, injuring his back and left side. He was unable to resume work and was taken home. A very thorough physical examination revealed nothing abnormal except slight tenderness, but no rigidity about the umbilical region. On account of possible internal injuries he was kept from work for six weeks, when, against Winch's advice, he returned to work. Shortly after noon of his first day at work, he suddenly fell down dead. Postmortem examination revealed small recent adhesions between the stomach and spleen and between the stomach and pancreas. The pancreas showed evidence of recent inflammation of its posterior surface. Nothing else abnormal was found. The cause of death was ascribed to the accident, its suddenness being probably due to a reflex stoppage of the heart, owing to the stomach dragging on the adhesions. In the relation of this case to the Workman's Compensation Act, the author dwells on two points: the great care which must be taken in dealing with accidents, even when apparently not serious, in view of the difficulties that may arise in regard to compensation; and the value of keeping full notes, not only of the injuries, but also of the general physical condition of the workman.

E. J. Huenekens.

DIFFERENTIAL DIAGNOSIS OF ABDOMINAL CRAMPS AND THEIR TREATMENT

By Prof. A. Albu

True stomach-cramp occurs nearly exclusively as pylorospasm. This has many causes. In the majority of cases an open peptic ulcer is present, sometimes a benign stenosis. It is not impossible that hyperchlorhydria or hypersecretion may bring about the spasm. Purely nervous pylorospasm is seen in tabes and in highly nervous hysterical persons. It does not occur as an isolated stomach neurosis.

Hyperchlorhydria, which may occur as an independent secretion neurosis, also may give rise to cramp-like pains. Gastric and duodenal ulcer are present in many cases. Inflammatory diseases of the bile-passages are to blame in certainly one-half of the cases of so-called gastralgia.

The pancreas not infrequently gives rise to epigastric colic. Appendicitis, epigastric hernia, intercostal neuralgia, and myalgia must be excluded.

Similar pains in the lower abdomen may be due to intestinal spasm, as in acute enteritis, chronic colitis, chronic appendicitis, lead-poisoning, etc. Spastic constipation causes pains of less severity. Organic stenosis may give rise to intestinal spasm of the bowel above. The so-called angina abdominalis may be diagnosed when arteriosclerosis of the abdominal vessels can be demonstrated or when angina pectoris is present. The pain is of short duration, not dependent on eating, but occurs after even slight exertion.

Kidney disease must be considered, as well as disease of the female genitals.

James S. Gilfillan.

BENEDICT'S SUGAR TEST—"ZUR BENEDICTSCHEN ZUCKERPROBE"

By Prof. Victor C. Myers

Münchener med. Wochenscrift, Nov. 27, 1912

Based on the fact that the hydroxides of alkali metals decompose glucose and other sugars more readily than the carbonates, Benedict was able to show that the latter gave more sensitive reactions for the detection of sugar by the reduction method than the former. Hence if the sodium hydroxide in Fehling's solution or in Haines' is replaced by sodium carbonate the sensitiveness of the solution is perceptibly increased. In order to get stability of the solution Benedict replaces the Rochelle salts in Haines' solution with sodium citrate and the hydroxide with the carbonate, and thus obtains a solution which is ten times as delicate for sugar, and, furthermore, it is not perceptibly reduced in the presence of kreatinin, uric acid, chloroform, or the simple aldehydes.

The formula is as follows:

Copper sulphate	17.3 grams
Sod. citrate	173.0 grams
Water-free sod. carbonate	100.0 grams
Dist. water	1,000.0 c.c.

In preparing this solution the copper is dissolved in 100 to 150 c.c. of water and then slowly added to the filtered other ingredients, which had been dissolved in 800 c.c. of water, the remaining amount of water is then added to make the 1,000 c.c.

Technic.—To 5 c.c. of the solution 8 to 10 drops of urine are added, the mixture is boiled vigorously one-half minute, and then allowed to cool. The reduction in the presence of small quantities of sugar (0.3 per cent) occurs only after the solution has cooled.

Benedict has also devised a modification of the solution for quantitative work. He adds to the qualitative mixture some potassium sulphocyanide. This is equally stable. The quantitative mixture consists of the following:

18 grams of copper sulphate.
100 grams of sodium carbonate (water-free).
200 grams of sod. or pot. citrate.
125 grams of potassium sulphocyanide.
5 c.c. of a 5 per cent sol. of potassium ferocyanide.
1,000 c.c. of distilled water.

The addition of the sulphocyanide makes the reaction most striking, as the precipitate is pure white. 25 c.c. of the solution are reduced by 50 mg. of glucose or 57 mg. of levulose. Chloroform must not be present in the urine. Myers calls attention to the use of the solution for the quantitative estimation of lactose in milk.

Henry L. Ulrich.

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APRIL 1, 1913

GOVERNOR SULZER ON HEALTH PROBLEMS

It is very evident from the tone of Governor Sulzer's message on Public Health that New York may be the leading state in the new and modern way of protecting the health of its citizens.

Governor Sulzer thinks that one of the first duties of the State is to protect the life and promote the health of its citizens and that there is no more important subject of public administration than public health.

A commission of eight experts was appointed on January 10, 1913, and a report was sent in to the governor on February 15. Public hearings were held, health officers of all towns, villages and cities of the State were communicated with, and detailed inquiries through personal representatives as to public health conditions and administration in every town and village of two counties which were selected as typical, formed the basis of the preliminary report. The message of the governor was sent into the legislature within a few days and it is expected that a definite organization will be effected.

It was found that the death rate of cities, some years ago well above that of the rural and village population, has steadily fallen and is now below the rural and village death rate. There seems to be no reason why both should not be uniformly low. The economic and financial side of the question is considered and comment is made upon the fact that from $70,000 to $100,000 per annum is paid out by the taxpayers as fees to the local boards of health for attendance at meetings and no adequate return is perceptible. Quarantine methods demand nearly $500,000 per annum. It is estimated also that the saving would result from an efficient control of preventable diseases other than tuberculosis throughout the state would be not less than $10,000,000 per annum.

Efficient public health administration pays, and the motto of the New York City Health Department, "Public health is purchasable," can easily be demonstrated.

New York loses 7,000 babies each year, and this can be stopped by state-wide registration of births, and in industrial centers of population a sufficient number of infant welfare stations will reduce the excessive mortality.

Minnesota is well in the foreground in many of the recommendations outlined by Governor Sulzer. We already have worked out some of the problems suggested, and if the legislature gives the State Board of Health all it asks for, Minnesota will give other states a good working standard. The following are the recommendations:

1. That the tenure and compensation of the State Health Commissioner be such as to secure and retain the most efficient man in the State for that service, and that he be required to devote substantially his entire time to his official duties.

2. That a Public Health Council be established with power to adopt sanitary regulations.

3. That the State Commissioner of Health exercise supervision over local health authorities and be specifically charged with the enforcement of the public health law.

4. That the State, outside of New York city, be divided into at least twenty sanitary districts with an expert sanitary supervisor in each, devoting full time to health work.

5. That the duties of town and village health boards not otherwise provided for be transferred to town boards and village boards of trustees.

6. That health officers of towns and villages receive an annual minimum salary equivalent to at least fifteen cents per inhabitant of the village or town.

7. That health officers of towns and villages be charged with the following duties: (a) Annual survey and a continuous supervision of their dis-

tricts. (b) Examination of all school children. (c) Inspection of all school buildings and places of popular assemblage. (d) Popular education as to public health. (e) Securing full registration of communicable diseases and of births and deaths. (f) Enforcement of public health laws and regulations.

8. The enactment of a modern statute for birth registration and other vital statistics.

9. Authority for each city, county, village and town to employ trained nurses, as infant welfare nurses, school nurses, tuberculosis nurses, and to visit the sick.

10. That the tuberculosis law be amended so as to provide (a) for more complete reporting of cases; (b) for supervision of reported cases by trained nurses; (c) for compulsory removal and detention of dangerous cases.

11. Additional State provision for incipient cases of pulmonary tuberculosis.

12. That a bureau of child hygiene, and a bureau of public health nursing, be added to the State Department of Health.

13. County hospitals for tuberculosis where not already established.

14. Adequate laboratory facilities readily available for all health authorities.

15. Establishment of contagious disease hospitals by local authorities, and their inspection by the State Health Department.

16. Regulation of midwifery.

17. Reports of health officers made presumptive evidence of facts stated; and such officers freed from personal liability, if acting in good faith.

18. Extension of educational work of the State Department of Health.

19. Encouragement of courses in sanitary science in educational institutions.

The facts set forth in the Commission's report fully justify these recommendations. The Governor strongly urges that the legislation necessary to carry them into effect be enacted promptly.

GASTRIC DISTURBANCES VERSUS TABES.

In many cases of early tabes gastric disorders not infrequently cloud the diagnosis. In a few cases because of the similarity of the symptoms of gastric crises and gastric ulcer, particularly when the vomitus contains blood, it is not uncommon to find that the two diseases are easily confused. Such experiences occasionally occur to surgeons and doubtless many cases of tabes are operated upon for gastric ulcer, when, if a more careful analysis of the symptoms was made, the tabetic condition would disprove the possibility of ulcer.

A mistaken diagnosis of ulcer is not limited to posterior spinal sclerosis but may be made from other cord lesions, notably pressure on the cord from tuberculosis of the vertebræ. A failure to recognize a disease of the spinal bones has led the surgeon to operate for gastric ulcer, gall bladder diseases and chronic appendicitis.

Tabes and other cord diseases, even in the early stages, give a hint to the careful examiner that a disease of the nervous system must be excluded before an operation is undertaken.

In one case the writer recalls that a laparotomy was performed for an abdominal disease when a palpable deformity of the spine was present, from which a severe pain radiated. This case led to a suit for malpractice and a nominal verdict was rendered against the surgeon.

Dr. W. F. Cheney in an article in the March number of the *American Journal of the Medical Sciences* on gastric disturbances in tabes dorsalis, records five cases, two of which had been operated upon for supposed gastric ulcer, without the slightest relief of their symptoms; and a third case was also subjected to surgery before the real situation was disclosed.

It is not often that the tabetic who suffers from gastric crises vomits blood and if he does he should be subjected to the same thoroughness in examination in order to eliminate the possibility of cord disease. Cases with attacks of nausea, vomiting, the presence of coloring matter in the vomitus similar to that found in stomach and gall bladder cases, pain in the mid-line or over a suspected area in the abdomen should be looked over for irregular pupils, contracted pupils and pupils that do not respond to light. The general sensory system should be as carefully investigated and the reflexes most thoroughly tried out and a Wassermann made to determine the presence or absence of tabes. In spite of the long years of a history of vomiting and pain and the failure to complain of pupillary and sensory disturbances there are usually a few indications that suggest tabes in its early stages. In suspected but doubtful cases an examination of the spinal fluid, even when the blood reaction is absent, is of great value in establishing a correct diagnosis.

When a laparotomy has been made and no disease of the viscera is found the presumption is

very strong that the fault is in the nervous system.

The neurologist sees finally a large number of patients who have passed through the surgeon's hands. From one to six operations have been made on one patient in an endeavor to locate a visceral disturbance and in the end the history and the findings show very clearly a badly organized nervous system or the presence of an organic nervous disease.

MISCELLANY

AMERICAN MEDICAL ASSOCIATION MEETING

The plans of the local committees at Minneapolis and of associate committees in the sister city of St. Paul for the meeting of the American Medical Association in June are rapidly maturing. While Minneapolis is especial hostess of the occasion, the city of St. Paul will take a substantial part in helping to entertain the large body of medical guests, with their families, who will gather here in June. Plans contemplate the entertainment of from six to eight thousand people.

The University of Minnesota has placed at the disposal of the local executive committee the entire campus, with its many buildings, as the special meeting place of the Association.

Members of the Association are requested to notify Dr. S. Marx White, chairman of the Committee on Hotels, as speedily as possible of the date of their expected arrival and of the extent and character of the accommodations they will require. The hotels, which are of unusually good capacity, will be reinforced by the several private clubs of the two cities, which are placing their rooms at the disposal of the committee.

A large committee of reception has been organized, members of which will be assigned to each railway station, to meet and pilot to their destination the guests of the Association on each incoming train. Bureaus of information will be established at stations, hôtels and meeting places for the benefit of visitors. A special committee of women physicians will take care of their professional associates who may attend the meeting from abroad.

A committee on local transportation will make it its special business to pilot guests about the city and to secure adequate street car, taxicab and automobile facilities for the larger events on the program of the meeting.

Among the unaffiliated scientific bodies which take advantage of the meeting of the American Medical Association for their annual sessions are the American Association of Medical Milk Commissions, which will hold its meetings on June 19th and 20th, at the Commercial Club in the Radisson Hotel; the American Academy of Medicine, which will gather on June 13th, 14th and 15th, at the Hotel Leamington, in Minneapolis; the Association of American Teachers of Diseases of Children, which meets at the Commercial Club on June 16th, and the Association of State Health Officials, the Society of Anaesthetists, the Association of Medical Librarians and the Society of American Medical Editors, the meeting places of which will be announced later.

Association week will be opened with the observance of Public Health Sunday, upon June 15th, in the cities of Minneapolis and St. Paul. The various ministers' associations have given their cordial support to this plan and, with practical unanimity, the individual churches will invite to their pulpits public health speakers provided by the Council on Health and Public Instruction of the American Medical Association. The ready sympathy which this movement has met goes to prove the appeal of the gospel of sanitation to the people.

The scientific and commecrial exhibits have been provided with ample quarters in the University buildings.

The plans of the entertainment committees, both in Minneapolis and St. Paul, suggest that the meeting will be an unusually brilliant one upon its social side. The ladies of the Twin Cities are anticipating the attendance of a large number of the wives and daughters of members and are preparing to make their visit an enjoyable one. The environs of the Twin Cities are of remarkable natural beauty and, linked with their park systems, which are wonderfully well developed, give ample opportunity for outdoor pleasure.

Minneapolis is a good focal point from which members and their families may extend their annual holiday by way of excursions to the great sightseeing regions of the Northwest. A committee of arrangements, appointed for this purpose, has planned a party to go by special train upon a twelve days' trip to the Yellowstone National Park. From this point, special opportunities will be given for extended excursions to the

Colorado Rockies, to the Canadian Rockies, to California and the Puget Sound country, and on to Alaska for a twelve days' cruise by way of the Inland Passage to the Land of the Midnight Sun, including visits to some interesting Indian and Eskimo villages and to some of the latest and finest of the Alaskan glaciers.

A. M. A. CLINICS.

Among the local committees arranging for the meeting of the American Medical Association at Minneapolis in June, is a committee on clinics. This committee announces that no clinics will be held during the regular sessions of the association or its sections; but that on Monday, June 16th, on Friday evening, June 20th, and on Saturday morning, June 21st, demonstration clinics will be given, in which eminent men from different parts of the United States will participate, at the larger hospitals in the Twin Cities.

Arrangements will also be made for the conduct of general operative clinics in Minneapolis, St. Paul and Rochester for several days preceding and following the meeting. A more detailed program will be issued later.

REPORTS OF SOCIETIES

POST-OPERATIVE ILEUS*

ABSTRACT

Post-operative ileus is a frequent sequel to operations within the abdomen, and is important because it presents always as an emergency, demanding prompt diagnosis and relief to prevent a fatal issue. I have had 14 cases in the past 10 years.

Etiology. Occurs as a recent or remote sequel. The cases fall into two groups, those due to mechanical causes, and those due to paralysis of the intestinal musculature.

The paralytic cases are mostly due to septic peritonitis, but a few are reflex, and some result from rough handling of gut.

The mechanical are largely due to kinking or compression from adhesions. The question of adhesions is a peculiar one; they fail to appear often when one would expect them, as after severe inflammation or drainage; and on the other hand, they may be numerous and intractable in the simplest cases. Means to prevent them, such as oil, salt solution or cargile membrane, have all failed.

Symptoms and Diagnosis. Important to differentiate between the two classes. In true ileus the prostration is not marked, the pain is paroxysmal, peristalsis increased, and the abdomen soft; in paralytic the prostration is marked, pain continuous, peristalsis absent, and abdomen rigid. In the former the obstruction is absolute; in the latter gas and feces are liable to be passed after enemata.

Prognosis. The important points concern the presence of peritonitis, and of strangulation and gangrene. These increase the danger of a fatal issue. Gangrene is present, however, only in a small percentage; and this fact has an important bearing on the extent of operative interference in a given case.

Cause of Death. Much experimental work has been done in recent years to determine this point. In cases due to septic peritonitis or where gangrene is present all agree that death is due to septic infection. In pure mechanical ileus, however, the cause is more complicated and there is a wide divergence of opinion. The earlier theories ascribed death to toxemia or to bacteriemia, but the later experiments seem to disprove these theories. McLean and Andries (J. A. M. A. Nov. 2, 1912) proved that neither the serum nor the whole blood of ileus dogs was toxic to normal dogs.

Hartwell and Hoguet (J. A. M. A. July 13, 1912) were able to keep ileus dogs alive and in good condition for three weeks and over by replacing the fluid lost in vomiting by subcutaneous injections of normal salt solution. They ascribe death to dehydration of the tissues principally; but also partly to interference with the splanchnic nervous system.

Treatment. If true, these recent ideas are of great value in respect to treatment. (1) If toxemia is not present, we may cease ill-advised efforts to eliminate poisons which have no existence in fact.

(2) If the re-establishment of the fecal stream is not the sine-qua-non to prevent the fatal issue, but this occurs because of the distension and the dehydration of the tissues, then we may direct our treatment, in the majority of the cases, and surely in the desperately sick ones, primarily to the relief of the distension and the restoration of the body fluids, and leave to a later and more favorable period the removal of the physical barrier. In fact, clinical experience is tending more

*Paper read at Minnesota Academy of Medicine, March 5th, 1913, by H. B. Sweetser, M. D., Clinical Prof. Surgery, University of Minn.

and more to the adoption of one of these indications, viz., the relief of the distension. Werth (Verh. d. Ges. Deutsch. Naturf. u. Artz. 1899 P. 2); Finney (A. J. S. Jan. 1908); Elsberg (A. of S. May 1908); Krogius (Deutsch. Zeitsch. f. Chir. Bd. 112.-456) all favor enterostomy under certain conditions. Westerman (Zentral. f. Chir. 1910) employs "continuous syphonage of the stomach" to control the distension above the obstruction and in septic peritonitis and reports favorable results. Cathartics have no place in the treatment and their bad effects are illustrated in two of my cases. If morphine has to be repeated for the relief of violent pain, it means serious intra-abdominal disturbance, and ought not to be continued until ileus and septic peritonitis are eliminated from the diagnosis.

Atropine is held to fulfill a valuable indication in threatened cases of ileus from the presence of adhesions, by overcoming the spastic contraction of the intestinal muscle. Eserine is dangerous in the presence of true ileus, but is valuable in the paralysis due to trauma or handling. In conclusion emphasis should be laid upon the fact that the danger lies more in the results which follow upon the obstruction, i. e., the distension, the excessive loss of fluid through vomiting, and the consequent low blood pressure, rather than in the mere fact of the presence of an obstruction, and that in the treatment of the individual case better results are more liable to follow conservative operative methods, than if we persist, at all hazards, to find and release the point of obstruction.

MINNESOTA NEUROLOGICAL SOCIETY

The Minnesota Neurological Society held its March meeting at the Town and Country Club in St. Paul, March 19th.

Dr. Crafts presented a case of family periodic paralysis. The patient is a man of 48. His trouble began at 12 years of age, when he woke one morning to find himself practically paralyzed from head to foot. The attack lasted two days. The attacks have occurred at intervals since, becoming gradually less frequent. They last from two hours to two or three days, and appear to follow severe exertion or some indiscretion in diet. In a typical attack the patient is unable to move and in complete relaxation. Respiration is practically confined to the diaphragm. The head falls from side to side, if moved. Coughing is impossible. The skin is pale and the reflexes are gone. There is no response to the electric current. The intelligence is not affected.

Dr. Ball and Dr. Dunning suggested the relation of this disease to the condition of migraine. On questioning, the patient gave a typical history of attacks of migraine.

Dr. Ball showed a woman of 59 who began having attacks one year ago. They begin with numbness appearing in the left hand, and this is followed by jerking which gradually spreads to the arm, the face and entire left side of the body, and finally, at times, to the right side also. Of late consciousness has been lost in some of the attacks, but this was not present at first. The patient has lost power to perform the finer movements in the left hand, and there is a marked diminution of sensibility for touch and pain up to the left elbow. There is also astereognosis in the left hand. Otherwise there are no neurologic signs. The case is looked upon as one of tumor of the right post central cortical region.

Dr. Ball's second case was a woman of forty, who had had three miscarriages and no living children. Her trouble began last August with uncertainty of gait. The entire illness developed within a couple of weeks. When seen by Dr. Ball there was marked mental dullness and loss of memory. The Wassermann test was negative in the blood and spinal fluid, but the latter showed 111 lymphocytes per c.c. and a positive globulin test. There was some pallor of the temporal discs, a slight diminution of the field of vision, and a slight intention tremor. The abdominal reflexes were absent. The plantar reflex was extensor on the left side, and the deep reflexes were very active. The patient was put on a treatment of potassium iodide and mercury on the suspicion that it was a condition of syphilis, but after three weeks there was no improvement and the patient was then put on fibrolysin, and there has been a steady and rapid improvement since. Dr. Ball now looks on the case as one of disseminated sclerosis.

ARTHUR S. HAMILTON,
Secretary.

RED RIVER VALLEY SOCIETY

The regular quarterly meeting of the Red River Valley Medical Society was held at Crookston, at the Hotel Crookston, Feb. 25, 1913. The following papers were presented and discussed:

Operative Treatment of Tubercular Spine, by Dr. M. S. Henderson, Rochester, Minn.; Sliding

Hernia, by Dr. Theo. Bratrud, Warren, Minn.; Suggestive Therapeutics, by Dr. C. E. Hamel, McIntosh, Minn.

Preceding the business meeting a banquet was served and following was a smoker and general discussion.

F. M. Dryden,
Secretary.

BOOK NOTICES

Progressive Medicine, December 1, 1912. Philadelphia. Lea & Febiger. Price, per annum, $6.00.

In the December volume of Progressive Medicine we have the usual complete resume of the literature on the subjects which are discussed in the volume.

Edward H. Goodman takes up the "Diseases of the Digestive Tracts and Allied Organs," in a very concise yet complete manner, especially from points of differential diagnosis of the various diseases which are common to the alimentary tract. The various diagnostic signs, which are brought out, are of great value to the general practitioner.

The subject "Diseases of the Kidneys," by John Rose Bradford, and "Genito-Urinary Diseases," by Chas. W. Bonney, are especially interesting and instructive.

"Shock, Anesthesia, Infections, Surgery of the Extremities, Fractures and Dislocations and Tumors," are discussed in a very able manner by Dr. Joseph C. Bloodgood in his characteristic way of bringing out the most essential points, which so much appeals to the practitioner.

An excellent "Therapeutic Referendum," by Dr. H. R. M. Landis, closes this volume.

Practical Medicine Series. 1912. Vol. IV. Gynecology. Edited by Emilius C. Dudley and C. Von Bacheller. Price, $1.25. The Year Book Publishers, Chicago.

The entire year's work is reviewed, and in some instances—under general principles—very special work is presented in detail.

Much stress is laid upon the importance of conserving ovarian tissue, even after maturity, if we would avoid descent or retrogression in the individual.

Under "Infections" and allied disorders; gonorrhoea, tuberculosis and vascular derangements are discussed at length, with many good suggestions for treatment.

Pruritis Vulvae is considered as having its seat in the nervous system only.

Interesting mention is made—in the chapter on tumors—of the relation between the cardiovascular system and fibromyomata of the uterus. The disturbance is thought to be due to a toxin which is developed during the growth of the tumor. The myocardium is most often affected. Early operation is most emphatically urged because of the tendency toward necrosis of some portion of the tumor with attending results from sepsis.

Carcinoma Uteri is ably dealt with from every viewpoint, with statistics as to percentage of "operable cases," "primary mortality," average "permanent cure" and "absolute cure."

The treatment of inoperable cancer with acetone is very favorably presented with necessary technique.

The conclusion reached concerning the retro-displacements, and their treatment, is very fully expressed, and some most valuable advice given. Anteflexion and retroflexion are reviewed and operations sparingly advised.

Dudley's operation of Posterior Sagittal section of the cervix for dysmenorrhea and sterility is highly recommended, with technique of operation and illustrations.

On the whole this volume is unusually full of practical, timely helps.

Eleanor J. Hill.

NEWS ITEMS

Richmond, Minn., is reported as about to build a hospital.

Dr. B. A. Kamp has moved from Alden, Minn., to Albert Lea, Minn.

Dr. L. M. Gerber, Jasper, Minn., is erecting a hospital, which will cost $10,000 when completed.

The Commercial Club of Menominee, Wis., has taken steps to build a public hospital in Menominee.

The Presbyterians of North Dakota are planning the erection of a denominational hospital at Hot Springs.

Dr. N. E. Patterson, Westbrook, Minn., has moved to Currie, Minn., and will continue his general practice.

An addition to the Bethesda hospital, Crookston, Minn., will be erected this summer at a cost of about $7,500.

Dr. C. J. King, McHenry, N. D., has moved to Columbus, N. D., and taken the practice of the late Dr. Blanchard.

Dr. N. J. Barton, Watertown, S. D., has been in New York city for several weeks, taking a special course in surgery.

The health department of Minneapolis has reported to the state health department that a case of leprosy exists in that city.

The Union Hospital Association, New Ulm, Minn., has purchased ground and will erect new buildings during the coming season.

Dr. N. B. Blanchard of Columbus, N. D., died suddenly from an attack of scarlet fever. He was buried at his old home in Ontario.

An absolutely fireproof as well as a thoroughly sanitary hospital is to be built at Harvey, N. D. It will be about 50x80 feet, two-story with basement.

Dr. C. N. Woodruff, Chatfield, Minn., has taken Dr. R. W. Huffman into partnership with

him. Dr. Huffman was formerly located at Evansville.

Dr. C. M. Jackson, dean of the medical department of the University of Missouri since 1900, has resigned and will accept a position as professor of anatomy at the Unversity of Minnesota.

The regular monthly meeting of the southwest division of the North Dakota Medical Association was held on March 13th at Hettinger. The meeting, while not largely attended, was a very interesting and enjoyable one for the physicians.

The bill fixing the per diem of members of the state Board of Medical Examiners, and limiting the expenses of the board, was passed by the Minnesota Legislature, making the per diem of members $10 while in actual service, with necessary expenses. It also provides for a secretary at $1,800, a stenographer at $600 and $800 for office expenses. All fees must be paid into the state treasury.

The Black Hills District Medical Society, which was held at Deadwood recently, had the following program for discussion: "Differential Diagnosis." Dr. Naftzger of Hot Springs was assigned diseases of the accessory sinuses of the head, Dr. Vercoe, Glaucoma or Iritis, Dr. Allen, diseases in the lower right quarter of the abdomen and Dr. Green, diseases of the biliary tract.

The last legislature of South Dakota passed some new medical legislation, dissolving the old Board of Health and the old Board of Medical Examiners and creating a new Board of Public Health and Medical Examiners to be appointed by the governor. The following physicians were appointed: Dr. P. B. Jenkins of Waubay, Dr. H. R. Kennaston of Bonesteel, Dr. Grove of Dell Rapids, Dr. L. G. Hill of Watertown, and Dr. J. J. Mertens of Hoven. Dr. Jenkins was on the old Board of Health, and Dr. Hill, who was secretary of the Board of Medical Examiners, was the only man on that board to receive appointment.

FOR SALE

Iron mining contract practice in pleasant Northern Minnesota town of 800. Income averages $300 per month and will double within a year owing to two new mines about to start. Large residence; rent free. No competition. Price, $1,000 cash. Late 1910 touring car good as new $550 (optional). The business is entirely cash; I keep no books and send out no bills. Address. Contract Practice, care Journal-Lancet.

PRACTICE FOR SALE

The practice of the late Dr. J. W. McDonald, Masonic Temple, Minneapolis, is offered for sale, with his library, surgical instruments, chairs, tables and complete office supplies. Address M. M., this office.

PHYSICIAN WANTED

A Norwegian physician, with good hospital training. Excellent opening. No money required. Must be sober and industrious. State age, experience, and references. Address L. E., this office.

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STRANGULATED INGUINAL HERNIA IN EARLY INFANCY*

By Arthur N. Collins, A. B., M. D.

DULUTH, MINN.

The preparation of this paper was undertaken with a three-fold purpose: (1) of placing on record a case of the writer's in keeping with the subject; (2) of assembling similar cases reported in the literature; (3) and of examining and discussing the literature, limiting the discussion to cases occurring in infants under six months of age.

The youngest case on record, treated surgically, appears to be that of Woodbury's, operated upon by Andrews in August, 1874. The child was forty-five hours old when the strangulated right inguinal hernia demanded operation. At the end of this time the hernia was the size of the child's head. Ether was used as an anesthetic. The neck of the sac was relieved by the knife and finger dilatation. The tumor contained the greater part of the large intestine. Complete recovery followed.

White, Stern, and Burnier report each a case operated on at 11 days of age. Bull and Coley's report contains one case at 13 days.

McLaurin, in 1900, reports a case of strangulated right inguinal hernia, operated upon by him in the Prince Alfred Hospital, Sydney. The child was 14 days old when operated on, and the hernia had been strangulated for 36 hours. He did not stop to make exact differentiation of the parts in his case. Recovery followed operation.

Stiles and Goinard each report one case operated on at 14 days. Jopson reports a case operated on at 2 weeks, in which strangulation had been present 24 hours. Carmichael also reports one case operated on at 2 weeks; Estor, one at 15 days, and Dun, one at 17 days.

THE WRITER'S CASE

Operation at age 18 days. On the evening of June 24, 1910, the writer was called to see a male child, weight 4½ lbs., emaciated, and ill nourished. Although breast-fed up to this time, the child's stools, according to the mother's statement, had been green and foul-smelling since birth (June 6, 1910). During the afternoon the mother had administered a glycerine enema. This was returned, accompanied by blood and mucus and a few bits of feces, and the babe vomited yellow fecal contents of the upper intestine.

Examination revealed double inguinal herniæ, both being down at the time. The one on the right could be completely reduced by moderate manipulation, but the left one could be but partially reduced. Fearing injury to the gut from too vigorous and prolonged efforts at taxis, and in view of the fact that a dose of castor oil had been given, the mother was advised to keep the babe as quiet as possible, the tumor under slight pressure, the head somewhat lower than the feet, and to call assistance if needed before morning. The tumor at this first visit was about the size of a large English walnut.

At 5 o'clock the next morning the babe was again seen. Stercoraceous vomiting had been repeated; there had been no further dejections, and the left hernial tumor was larger, hard, tense and blue with congestion; tympanites increased,

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

and the little infant was visibly exhausted. No reduction of the tumor could be obtained. The right one was easily reduced.

The seriousness of the situation was explained to the parents, and they were advised to remove the babe to the hospital for immediate operation. An uncertain prognosis was given.

At the hospital, less than two hours later, the infant was given chloroform, and an attempt again made to reduce the tumor by taxis, the body being held head downward, but the attempt was a failure. Accordingly the hernia was cut down upon. The tense, congested gut showed through the almost transparent peritoneal sac. The latter was opened, and the gut examined for signs of gangrene. None presented. The inguinal ring was, by means of forceps and a nick at the upper edge, dilated sufficiently to draw out a few inches of the abdominal gut for inspection. Circulation in the congested portion was re-established by hot compresses, and the gut returned to the abdomen.

Closure of the wound was a very uncertain consideration, owing to the frail structures. The sac was not tied or cut, muscles and fascia were stitched over and over as securely as possible with No. 1 chromic catgut, and the skin with a running suture of the same. No attempt was made to transplant the cord. A thick pad of gauze, wrung out of boric and alcohol, was placed over the wound and supported by a napkin pinned tightly in place.

The babe was returned to the nursery, placed in warm blankets, and surrounded by hot water-bags. Respiration had apparently ceased, and no pulse could be felt. A drop of brandy on the tongue, artificial respiration, and, as soon as possible, strychnine sulphate, gr. 1/300, hypodermically, were administered, and in ten or fifteen minutes the babe was breathing independently, and crying soon afterwards.

At 11:30 A. M. (about four hours after operation) a profuse foul-smelling dejection occurred voluntarily, containing a few streaks of blood. This was the last blood seen. The stools gradually regained a normal color and odor, artificial feeding was begun at once, and the babe gained 1¼ lbs. during its stay of two weeks in the hospital. The wound was kept sterile by fresh dressings of gauze wrung out of boric and alcohol solution at each change of napkin. Healing was by first intention.

Two or three times during the first 48 hours, and once on the third day, a small bulging presented beneath the lower end of the wound during crying spells. This was easily reduced and held in place by counter-pressure, and thereafter no recurrence of the hernia appeared. The babe was continued on a modified formula of malt soup and cow's milk, and gained steadily, weighing at 3 months of age 8½ lbs., a gain of 4 lbs.

In this case the babe was first seen on the evening of the seventeenth day and operated on the morning of the 18th. After operation the mother was cautioned to carefully watch for a recurrence of the hernia on the right side, and also cautioned against allowing the child to become constipated. The operation was done primarily to save life, and not for radical cure of the existing herniæ.

Kirmisson reports a case operated on at 18 days with recovery.

Another case operated on on the 18th day is reported by J. L. Sagerson (Johnstown, Pa.). The case is recently quoted by J. B. Murphy. Fecal vomiting and an empty lower bowel were present. The child was removed to the hospital and the first incision made without anesthesia. After release of the constriction, the child's condition seemed to be easier, and chloroform was administered. The appendix was found within the hernial sac and removed. The child was allowed to nurse on the second day. Good recovery followed operation.

Bidwell cites a case in which he operated at 19 days. From the twenty-seventh day to one month, several cases are reported by English, French, and American writers, notably Bilhaut, Thomson, Whitacre, Reed, Stretton, and others.

From one to six months, the recorded cases are relatively less numerous. Telford collected 112 operated cases, up to six months of age, and tabulates them as follows:

Age in months	1	2	3	4	5	6
No. of operations	34	27	24	12	6	9
Total operations						112

Kirmisson quotes Mayer, who collected 105 cases, 72 of which occurred under six months of age and 33 between six months and one year. He quotes Pettijohn also (Paris 1899), who collected 59 cases six months or under, and 22 cases six months to one year.

The table below is given for the purpose of illustrating the manner in which the cases decrease in number, up to six months of age.

Number of Cases

	1 mo.	2 mos.	3 mos.	4 mos.	5 mos.	6 mos.	Total.
Mayer	18	17	16	9	5	7	72
Pettijohn	15	17	9	5	5	8	59

Etiology and Occurrence.—Judging from the large number of herniæ found in adults, and from those we are accustomed to regard as congenital, it seems reasonable to state that strangulated inguinal hernia, at a very early age, while not an exceptionally rare occurrence, is still comparatively so, though in the last few years case-reports are becoming more numerous.

Undoubtedly the cases we never hear of are those in which the symptoms of strangulation are attributed to colic by the mother or nurse. (Vaughan.)

In reviewing the histories of 15,000 cases of inguinal herniæ in adults, Coley found that about one-third of them had had hernia in infancy or childhood.

Carmoday says not one-half of 1 per cent. of the cases of hernia occurring in infants become strangulated.

Estor, writing in 1903, says that strangulated inguinal hernia is rare in infants, but not the exception. He also observes that during his work of collecting some 225 cases of strangulated herniæ of all kinds, under two years of age, he found that in nine of the largest clinics in Europe the records showed not a single case operated upon. He further estimates the relative frequency of strangulation in children to that in adults as 1 to 62. Frickhoffer estimates it as 1 to 107; Sterns, as 1 to 108.

One hundred and twenty, or one-half, of Estor's cases, occurred within the first six months. (This, of course, includes umbilical and femoral herniæ.) In ten cases no hernia had been noticed up to the time of strangulation.

Broca states that strangulation under one year is more common than later.

Moynihan's tables, quoted by Carmichael, show strangulation to be most common during the first month of life, and gradually less frequent up to one year.

It is probably true that there has been a tendency to under-estimate rather than to over-estimate the number of cases calling for operation. McLaurin suggests, as an explanation of the relative rarity of these cases, the softness of the structures at the neck of the sac making the pinching down upon the gut in an existing hernia an unusual occurrence. Estor also states that the rarity of the accident of strangulation is perhaps explainable by the feeble resistance of the tissues which form the sac of the hernia.

Coley, on the other hand, saw but one case in which he believed the strangulation was due to the neck of the sac. In all other cases he explained the strangulation by tightness at the external ring. He thinks the neck of the sac is not the cause of the constriction.

Broca observes that children, up to one year or eighteen months, with backward physical development, present conditions predisposing to hernia. He gives as the predisposing causes: rachitis, malformations of the peritoneum, and prematurity. Paternal heredity seems to be a noticeable factor. Many children are born with a hernia already formed and frequently containing a portion of the large intestine; moreover, ill-nourished children show no tendency to spontaneous cure, but the condition is more and more aggravated by crying and straining, bringing about, as it were, a vicious circle of ill nourishment, fretfulness, and aggravation of such herniæ as may exist.

It is quite noticeable that we find very little mention of adherent or incarcerated herniæ in infants. This is probably explained by the fact that the hernia has not existed sufficiently long to become adherent in its abnormal situation. E. Cordier, however, cites a case of double inguinal irreducible hernia found in a child at term. Herr (Wetzlar) reports a case, also, of incarcerated inguinal hernia in a child three months old, and mentions two cases operated on by Klaussner (Munich), one at six weeks and one at four months.

P. Kovacs states that in ten or fifteen cases in which he had operated in later childhood for sudden recurrence of hernia treated by truss and supposed to be cured, he found evidences of incarceration in over one-half the cases.

The symptomatology in children differs from that in the adult chiefly from the absence of subjective evidence and tendency to more rapid collapse. The objective symptoms are nausea, vomiting, constipation or obstipation, tenesmus, local tenderness, swelling, hernial tension, blood and mucus per rectum, variations in pulse from the quick, hard variety, followed later by the wiry, small, weak and more rapid variety. Depending upon the patient's general condition, the face may be flushed with fever or pallid, as in shock, pinched and drawn.

The cardinal symptoms more peculiar to infants are violent and uncontrollable screaming, recurrent vomiting (often fecal in character), tendency to retention of the urine (Herr), and constipation, facies suggesting shock. There is also a great tendency to rapid collapse.

Contents of the Sac.—The contents of the sac are most frequently the small intestine or por-

tions thereof, though not infrequently the cecum and appendix are found. Estor observes that the appendicular and ceco-appendicular varieties are more frequent than in adults.

Stiles found the cecum in the hernial sac in 7 per cent. of his cases. The cecum is more mobile in children than in adults. He regards such cases as more liable to become irreducible, incarcerated, or strangulated. In Telford's 104 cases, the small intestine was found in the sac in 83 cases; the cecum and appendix, in 21 cases. In Estor's 225 cases, the appendix or cecum and appendix were found in the sac in 17. The omentum in infants is ordinarily not developed sufficiently to be found in the sac.

Diagnosis.—The diagnosis presents few difficulties, and these chiefly in comparison with the diagnosis in adults. An accurate history is of the utmost importance. In the presence of vomiting, especially if of stercoraceous material, in the absence of stools, and in the presence of pallor, sunken eyes, the possible retention of urine, and very rarely the symptoms of early peritonitis, one should be fairly sure of the diagnosis. Herr makes a special point of vomiting, pinched or drawn countenance, and the absence of stool, in establishing a diagnosis. An inflamed ectopic testicle should also be considered.

The possibility of an acute hydrocele must be considered, and an effort made to rule this out in making a diagnosis.

In Stern and Burnier's case a diagnosis of strangulated inguinal hernia was first made on the tenth day of the infant's life. Upon further examination the diagnosis was changed to hydrocele. The symptoms soon took on a serious aspect, however, and operation was done thirty hours after the appearance of the tumor. Operation revealed a gangrenous gut with two perforations due to strangulation. Artificial anus was made, and the infant recovered.

This case serves to illustrate the rapidity with which the infant intestine may go on to gangrene, the possible non-appearance of alarming symptoms until gangrene and perforation may be present, and also the amazing recuperative power of an infant after so serious an operation. Gangrene may take place in one hour, or it may not take place for twenty-four hours or more. (White.) It should be borne in mind that hernia in a young infant is quite translucent. (Clogg.) Clogg cites two cases, in one of which the hydrocele was tapped, and a complicating hernia discovered.

Prognosis.—In general, authorities are fairly well agreed that the prognosis in these cases is good in proportion as the diagnosis is established early, and the case operated on promptly.

Dun makes the statement that the older the child, the shorter the duration of strangulation, and the less prolonged efforts at reduction by taxis, the better the prognosis.

Bidwell is inclined never to give a bad prognosis, owing to the fallacy of the belief, in past times, that it was not possible to operate without a large per cent of infected cases.

Although infants show a great tendency to collapse while the hernia is in a state of strangulation, it is noticeable that with the relief of the strangulation, they recover very rapidly and quite satisfactorily.

Reid (J. A.) believes the prognosis depends upon the duration of strangulation, and the amount of damage done by taxis previous to operation.

Stiles observes that if he were asked at what age to operate, he would say "just before teething." Of his operations for radical cure, 26 per cent were under twelve months old. Lucas also advocates early operation for radical cure and discourages the use of the truss.

Mortality.—Unfortunately, all the cases reported in the literature are not supplemented by a statement concerning the recovery or death of the patient. The opinions of various writers tend to establish the fact, however, that the mortality should be much less in infants with strangulation, if properly cared for, than in adults.

Most of the mortality is due to waiting. Taking the cases as they run, the tables, according to Estor, show an aggregate mortality of 23 per cent. Authorities are agreed that the mortality should be very much less. Coley considers that the mortality should be considerably smaller than that in adults. In his 17 operated cases there were no deaths.

Dowd believes that the mortality should not exceed 10 per cent when operation occurs promptly. Reid (W. B.) believes that were these strangulated cases in infancy operated on under aseptic conditions and early, before they had been maltreated by taxis, the mortality need not be more than 3 per cent. Reid (J. A.) believes that the mortality should be less than 1 per cent.

Treatment.—Mistakes are made, either in prolonging efforts at taxis, or in instituting too vigorous taxis. Rough handling of the hernial tumor is a dangerous procedure. The child is not as able to tell you how much pain you are causing as the adult is; moreover, taxis, if one has

a case of strangulation, is seldom rewarded by reduction of the hernial tumor. This places upon the operator the responsibility, therefore, of being prepared to operate at the same time he makes his preparations leading to the anesthetization of the child for the purpose of attempting reduction. It is almost axiomatic that, with the failure of reduction by taxis, operation is imperative. It is not taking too broad a step to assert that the operation should be as nearly immediate as is possible. There is no other method of dealing with the condition which gives promise of results which are nearly as good. (Dowd.)

In the absence of reduction by taxis, with prolongation of strangulation and its attendant symptoms, the child will most assuredly die if not relieved by operative interference. The ultimate result of strangulation is gangrene.

Operative Methods.—Having established a diagnosis and being prepared to operate, the question of an anesthetic presents itself. The greater per cent of the cases reported have been given chloroform. Herr used ether-chloroform. One operator made his original incision without any anesthetic, and later in the operation used chloroform. No cases are reported in which a local anesthetic was used. In a case reported by Guion, no anesthetic was used throughout the operation.

At the present time, with the almost universal use of ether, it is probable that this will be the anesthetic of choice. Children take it well, and it requires very little more time than chloroform to administer. Dowd believes it is much better for this class of cases than chloroform.

The choice of operation should be immaterial, though it would be folly to attempt a too-extended operation, consuming much time, in case of an exhausted infant requiring operation for strangulation. At the Mayo clinic they have found it unnecessary to transplant the cord in very young children. Coley and others follow this procedure also.

Cumston, after reviewing the various methods of operation for inguinal hernia in children, and considering those of Kocher, Broca, MacEwen, La Dentu, Mugnai, Ball, Barker, Lucas-Championniere, Kirmisson, Russell, Froelich, Felizet, Gaudier, Cooper, and others, believes that the Bassini is the best for a rapid, simple, and, at the same time, thorough operation. Dowd also favors the Bassini.

Many of the operators who have reported operations for the relief of strangulation have followed no definite operative method. It is to be borne in mind, when one undertakes in these cases, that the procedure is attempted primarily to save life, and not primarily to effect a radical cure. Occasionally complications will present, making it advisable, and even necessary, to do more than merely relieve the constriction.

Whitacre discovered in a child of seven weeks a strangulation which had been present four days. Upon making his incision, the gut was found to be not only gangrenous but wide open, freely discharging its contents. He resected five inches of the gut, and did a lateral anastomosis at the first operation, in addition to relieving the constriction. On the day after the operation he re-opened the abdomen, on account of persistent fecal vomiting and increasing tympanites. At this operation he placed an enterotomy tube just above the anastomosis. From this on, the child improved, taking the breast ten hours later. On the sixth day after the first operation, he did a third operation, making an end-to-side (ileum into cecum) anastomosis. The operations were apparently well endured, and the child made a good recovery. This serves as another illustration of infantile recuperative power.

The appendix, in several instances where present in the sac, has been removed during the operation for strangulation, and with no ill results.

We are at liberty, therefore, to conclude from the past combined experience of numerous able operators, that the operation looking toward the relief of strangulation in infants is not to be regarded as a very forbidding one. It should not consume a great amount of time, and if done promptly one should feel confident of a favorable outcome. Operation has undoubtedly been delayed, in the past, on account of the tender age of the patient, as well as the fear of sepsis following. That this fear is largely unfounded is illustrated by Campbell's 305 cases in infants and children, 77 per cent of them being under three years old and 34 per cent under six months. In his series of cases there were only two which suppurated.

Moreover, too many cases have been subjected to prolonged delay and treated to an excess of taxis. Such prolongation is pernicious. No physician is justified in delaying operation until the prognosis is bad; and no operator need fear to handle these cases in the ordinary surgical way. The greatest mortality is due to procrastination, or unintentional or perhaps unavoidable delay before operation.

The treatment of the sac is somewhat impor-

tant, inasmuch as the vas is very delicate in infants, usually lies close to the sac, and is very easily injured by manipulation. The risk of removing the sac, therefore, is emphasized by Lucas; and several operators feel that the sac is better left alone and neither tied, cut, nor removed.

The urgency of treatment is greater in these young infants than in like cases occurring in adults, owing to the rapid necrotic changes following any interference with the circulation in the delicate bowel. The urgency is also greater, owing to the early appearance of shock.

The manner of suture, closure, and dressings has varied in the past, and may be summed up in a few words: use the simplest operation consistent with the severity of existing conditions. An attempt to transplant the cord is usually unnecessary. Simple suture of the soft parts and closure of the wound without drainage, and either the method of Stiles for superficial dressing, or sealing the wound with collodion, will be perhaps preferable. Stiles recommends at first an emulsion of glycerin and iodoform, followed by dry boric powder. He bandages the legs and arms, and fixes the child so that the dressing cannot be disturbed, and leaves the wound exposed to the air. The urine is collected by means of a glass tube left in place. Occasionally retention of the urine will be met with for the first day following operation. (Thomson.)

Some operators dislike the collodion dressing. It has its disadvantages. The writer's experience with the boric and alcohol dressing, applied at every change of napkin, proved very satisfactory, and is a reasonably simple procedure. There was no maceration of the skin, the chromic subcutaneous skin suture held the wound in close apposition, and there was absolutely no sign of infection at any time.

Some very successful cases have been reported where operation has been performed under most adverse circumstances, in the home on a kitchen table, no surgical assistance whatever, and no reliable after-care. (Stretton, Mitchell.)

SUMMARY

In proportion to the large number of herniæ existing in infants and children, the strangulated cases are comparatively rare, though case-reports are becoming more numerous. It would seem that the older the infant, the fewer cases of strangulation we find. In other words, hernia strangulation under one year is more common than later. Statistics show the greatest frequency in the first three months of life. The relative frequency of strangulation in children to that in adults is variously estimated as 1 to 62 in one instance; 1 to 107 in another; and 1 to 108 in a third.

There seems to be a tendency to under-estimate, rather than to over-estimate the number of cases calling for operation.

CASES REPORTED SINCE 1907, NOT INCLUDED IN ASHHURST REPORT:

Operator	Sex	Age	Duration of Strangulation	Contents of Sac	Condition of Bowel	Result
Adams	M	22 mos.	12-18 hours	?	Good, replaced	Recovery
Clogg	?	5 wks.	?	?	?	Recovery
Collins	M	18 days	12 hours	Small intestine	Good, replaced	Recovery
Cordier	M	2 mos.	?	?	Good, replaced	Recovery
Grossmann	?	4 wks.	?	Cecum and appendix	Gangrenous	Recovery
Hopkins	M	4 mos.	30 hours	Intestine and omentum	Fairly good, replaced (adherent)	Recovery
Jopson	?	2 wks.	24 hours	?	Good, replaced	Recovery
Judd	M	22 days	24 hours	Small intestine	Good, replaced	Recovery
Ruotte	M	3 mos.	?	?	Good, replaced	Recovery
Ruotte	M	6 mos.	?	?	Good, replaced	Recovery
Sagerson	M	18 days	24 hours	Cecum and appendix	Fairly good, app. removed, replaced	Recovery
Stern and Burnier	M	11 days	30 hours	Unrecognizable	Gangrenous, artificial anus	Recovery
Starr, V. H.	M	5 mos.	About 5 hours	Small intestine	Good, replaced	Recovery

Writers are not agreed as to the specific cause of strangulation. Few cases are reported wherein is demonstrated incarceration. The relatively short duration of strangulation probably accounts for this.

The cardinal symptoms peculiar to infants are violent and uncontrollable screaming, recurrent vomiting (often fecal), retention of the urine, drawn facies, constipation, and tendency to rapid collapse. The small intestine is most frequently found in the hernial sac; the cecum and appendix have been found in from 7 per cent to 20 per cent; the omentum is rarely found in the sac.

In the diagnosis one must be on the lookout for the possibility of acute hydrocele; also acute inflamed ectopic testicle.

Authorities are agreed that the prognosis in these cases is good in proportion as the diag-

nosis is established early and the case operated on promptly. Some writers believe a bad prognosis should never be given, unless the child is discovered to be in a very serious condition when first seen. Some of the worst cases of gangrene and perforation have recovered under proper surgical treatment. Fear of infection should not be considered a serious objection to operating when done under proper conditions.

While infants show a tendency toward collapse where the hernia is in a state of strangulation, this resolves itself when the strangulation is relieved, and they recover very rapidly and quite satisfactorily.

The consensus of opinion is that the mortality should be much less than in similar cases with adults. Most of the fatalities are due to waiting. Dowd believes the mortality should be ten per cent or less when the operation occurs promptly. Other writers would cut this down to 3 per cent or even less than 1 per cent.

Too vigorous or prolonged efforts at taxis are dangerous, and rough handling courts disaster. Taxis is seldom rewarded by reduction of the hernial tumor; and it is almost axiomatic that with the failure of reduction by taxis, operation is imperative, or the child will most assuredly die. Gangrene is the ultimate result of unrelieved strangulation.

The anesthetic used in most cases has been chloroform. Ether will be found preferable by those who are most accustomed to its use.

The Bassini operation is favored by Cumston and others. The simplest operation is the best, bearing in mind that the operation is done primarily to save life, and not primarily to effect a radical cure. The occasional case will be the exception. The operation, from this viewpoint, should not be regarded as a forbidding one. From the number of successful cases reported, the tender age of the patient does not forbid the procedure. On the other hand, procrastination and too much insult by taxis is unjustifiable and increases mortality.

The urgency of treatment is greater in infants than in like cases occurring in adults, owing to the rapidity of necrotic changes following embarrassed circulation; also greater, owing to the early appearance of shock.

Care should be rigorously exercised lest in treatment of the sac the delicate vas be injured by manipulation. The risk of removing the sac is therefore emphasized.

The manner of suture, closure, dressings, and other after-care will depend upon the operator and his preferences. The experience of the past has given no didactic rule.

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DISCUSSION

Dr. Earl Hare (Minneapolis): The consideration of this subject, so clearly stated by the essayist, is of especial interest to me. The fact that very few cases have been reported so successfully treated as the one recited, adds to its interests.

External abdominal herniæ are usually due to one of two causes: first, developmental or acquired weakness of the abdominal wall; second, increased intra-abdominal pressure.

Hernia is especially common in infants under one year of age. This may be accounted for by either one of the above reasons. Developmental weaknesses may be seen; the inguinal canal is very short; the internal and the external rings being closely approximated; the tunica vaginalis testis may communicate with the abdominal cavity, owing to failure of the processus vaginalis to close; the pelvic organs, especially the bladder, may extend well up into the abdominal cavity and increase the intra-abdominal pressure; the child lies with the thighs constantly flexed on the abdomen, thus relaxing the inguinal rings—all these factors are instrumental in the production of these herniæ.

Of still greater interest is to determine why the strangulation occurs. The fibers of the external oblique aponeurosis separate near the pubic spine and form the inner and outer boundaries of the external ring. The contents of the hernial sac, compressed by the sharp margins of these pillars, become swollen, and the greater the swelling, the greater the pressure until a strangulation occurs. In the case reported by the essayist this condition was no doubt hastened by the continuous crying of the baby. This type of hernia is favored by the descent of the testes and the presence of the spermatic cord passing through the abdominal wall, and for this reason of greater frequency in the male.

While not within the exact limits prescribed by the essayist, I desire to mention a case of inguinal hernia in a little girl of four, recently operated on by me at the University Hospital. It is of especial interest because the ovary and tube were found within the sac, the distal end of the tube being adherent to the posterolateral surface of the sac, and thus held firmly within it. This case illustrates the tendency at times for the ovary to follow an aberrant route during its descent, and accounts for the fact of its being found as a part of the contents of inguinal herniæ.

I wish to congratulate Dr. Collins on the excellent presentation of this subject and the promptness with which his little patient recovered following the relief of his strangulation.

Dr. Ralph St. J. Perry (Parker's Prairie): About a year and a half ago I had a baby brought to me which was two years of age, yet its mental and physical development was that of a child of eight months. It could not walk or talk, and it was decidedly rachitic. It had congenital inguinal and umbilical hernias. I told the parents at the time that I did not consider it advisable to perform an operation on the hernias, and that the best thing to do was to build the child up. I advised them to use the Berlin wool truss that Dr. Ochsner has just told us about in his address.

About four weeks ago, at one o'clock in the morning, this child was brought to me with a strangulated inguinal hernia, the mother saying that she had never before had any trouble in getting the hernia back into place; although it came down frequently, it had gone back without the slightest trouble. This time she could not reduce the hernia. I explained to her the difficulties in a case of this kind, and the probabilities were that the hernia was strangulated. She told me that the child had been eating gravel and sand. I tried to reduce the hernia, but could not get it back. My assistant tried to reduce it but could not do so. I explained the position to the mother, and told her the only thing to do was to operate on the child, and she gave her consent. I operated, and when I cut in I thought I would have no trouble in getting the intestine back, but I had more difficulty than I anticipated. When I got in and took hold of the knuckle of intestine it imparted the sensation of having little bits of gravel in it. I made gentle efforts to get the intestine back, but could not do so. The gravel in the intestine was in a bunch, and to overcome that I pulled out six inches of the intestine, formed the gravel into a "procession" and then got the intestine back.

Dr. A. N. Collins (Closing): I am very much obliged to Dr. Hare for the anatomical points he brought out. There has been considerable discussion as to what is the real cause of the strangulation *per se* in these cases. Some writers believe it is due to the neck of the sac. Coley vigorously denies this. He believes that in one case it was the cause. In all other cases he found it was due to the tightness at the external ring.

In regard to the dressing: The dressing I used was a thick pad of gauze wrung out of boric and alcohol solution—a wet dressing.

As to the suture: It was a running suture through the muscles, and no attempt was made to transplant the cord, I used a subcutaneous suture of chromic catgut. A napkin was pinned tightly over the pad of gauze, and with every change of napkin the gauze was wrung out and re-applied. There are various methods which it would take too long to discuss. The method of Stiles, which I believe he has modified from time to time, is to put them up in a plaster cast, leaving the wound practically exposed to the air with gauze over it, immobilizing the patient's arms and legs. There are various other methods, but it would take too much time to discuss them all at length.

SOME VERY ACUTE CASES OF APPENDICITIS IN CHILDHOOD*

By N. L. Werner, M. D.

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In the selection of these few cases following, I wish to state that they were chosen from the severest types of appendicitis in young children with which I have had to deal. They also came under my care late after the onset of the first symptoms, consequently the prognosis was not very good.

I believe appendicitis in childhod to be quite a common disease, and it very frequently assumes alarming symptoms. I shall submit brief histories of a few cases.

Case 1.—I. A., a girl, aged 10 years.

She was taken suddenly sick in the morning. I was called at 5 P. M. I found the patient, a frail little girl, suffering the most intense pains and tossing about in bed. The restlessness was so extreme that it was with difficulty that I could make an examination. She was in a condition of extreme septic intoxication and it was practically impossible to make her understand anything at all. The delirium, the nausea and vomiting, the extreme pains, the board-like abdomen, the almost imperceptible pulse at the wrist, the cold extremities, and the pinched, drawn expression on the face at once suggested the diagnosis of acute perforative peritonitis with profound sepsis. Owing to the fact that the pulse would at times almost disappear at the wrist, and deeming the case hopeless and unable to stand an operation, this patient was not operated on and died at 4 A. M.

A post-mortem revealed the following conditions: acute, diffuse, septic, purulent peritonitis; peritoneum red and infected; bowels agglutinated together with recent very numerous adhesions; thin septic fluid present in abdomen only in very small amount. Streptococci and pneumococci were the organisms obtained by culture of the fluid. The appendix presented a small spot of gangrene with perforation of same, and was adherent to intestines. In this case I believe the inflamed and infected appendix must have been involved before. In other words, it is my opinion that the child has had an abscess in the appendix before it perforated, and that, when she became very sick, at the time they called me, it was the beginning of acute septic peritonitis, from which she died.

Case 2.—The second case I wish to call to your attention is that of a little girl of five and a half years of age. She was taken ill with what appeared, for the first three or four days, to be an ordinary attack of indigestion with diarrhea, nausea and vomiting, and some pains, I was told; but the pains were not a marked feature of the case. The child was allowed to run about on the floor and in the yard. In the evening of the fifth day of the attack I was called, and found the child with a temperature of 103°, a very rapid pulse, dry tongue, and complaining of pain midway between the umbilicus and the ensiform appendix. Nausea and vomiting, and rigidity of the recti, with dullness in right side were in evidence.

Diagnosis: Abscess in right inguinal fossa. Operation was advised; and on the following day, at the home and on the kitchen table, the child was anesthetized, and the abscess drained. The abscess proved to be a large appendiceal abscess. This patient took the ether very badly, and the anesthetic had to be discontinued altogether. It is my belief that in the cases that are very septic, the less anesthetic we can give the better. One thing is certain, that a person suffering from extreme sepsis does not stand an anesthetic as well as the normal individual, and in operating on these cases, we must be prepared to meet this complication.

This child recovered completely.

Case 3.—J. Schoefenburg; girl.

In citing this case I wish to state that this is the youngest patient in whom I have seen this disease. She was only four years of age and gave the following history: Taken sick in fall of 1908 with symptoms, pains at first, later vomiting and constipation. As far as was known the pains became better and the child was allowed to be up and dressed and played for first four days. The symptoms became more severe and I was called on evening of the fifth day, and found a distended abdomen, some induration in the right iliac fossa and rigidity of the recti muscles, dulness in the flanks, tympanites in center of abdomen, pains colicky-like and very

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

intense, the pulse very irregular, very fast and hard to count, vomiting of stercoracrous fluid, dark and ill-smelling.

Diagnosis.—General septic peritonitis. Advised operation as soon as possible. Not being in a position to do the operation myself, I called in a surgeon who arrived after four hours. But by this time the child was practically moribund and no hope for recovery was held out. Operation consisted of median incision. Abdomen was filled with thick foul smelling pus. Drainage was good and child placed in bed. Appeared to rally, but only for a short time. Patient finally lapsed into coma and died three hours after operation.

Case 4.—H. J., a boy, aged 5 years, 2 months, was taken sick with acute pains in the abdomen. Emesis occurred in the morning with some disturbance of the bowels. A physician was called on the day following, and he gave an anodyne pill and a brisk cathartic. The child appeared better, but on the following night was again severely ill with the same symptoms as before—to such an extent that he would cry out from pain. Examination showed the entire abdomen hard and swollen, both recti muscles rigid, right rectus more rigid than left, with marked hyperesthesia of the skin over the right side.

The boy was removed to the hospital, and this condition was found present: pulse, 170; respiration 30; pains in abdomen had abated, but distention was becoming increased; no nausea or vomiting; dulness manifested in right side almost extending from anterior superior spine of the illium to the umbilicus; leucocytosis, 18,000.

Diagnosis: Abscess formation.

Applied ice-bag to the abdomen and stomach lavaged. In the evening the nurse reported that about a teaspoonful of pus had passed from the rectum. Patient was becoming very restless, and inasmuch as the distention was becoming alarming with symptoms of bowel obstruction and a very large abscess, I at once operated. Evacuated a large abscess cavity in iliac fossa, and another, or rather a pocket of the former, extending into the pelvis and encircling the rectum, bladder and all. Put the drainage-tubes in position through a low stab-wound. I opened the first loop of presenting intestines with knife, and relieved the gaseous distention until the abdomen was flat. We also evacuated a good portion of the bowel contents and closed with double Lembert suture. Temperature dropped to 99.5°; pulse, 130; emesis ceased in the morning; and we believed all well. In the afternoon, however, the tympanites began to recur, and by 3 P. M. emesis of bowel contents was again present every ten or fifteen minutes. At 7 P. M. the tympanites was almost as great as the evening before.

The boy was again placed on the table and the bowel opened. This time we inserted a rubber tube the size of a 14 E catheter for drainage of the bowel. Sewed the tube into the bowel with purse-string suture, and put free end into a bottle at patient's side to collect the contents of the intestines. This tube was left in situ for three days, when it dropped out. The temperature was normal mornings, and all signs of emesis had disappeared. The boy was placed on a light diet and did very well from this time on. But the fistula refused to close up, and the only way to keep the skin from becoming macerated from the liquid contents of bowels constantly present was to place a small pad and use strong pressure on the same. The bowels moved naturally six days after the last operation.

The boy continued to improve for six months when he was again taken with a severe attack like the first attack. The appendix was then removed. It was a very large and inflamed organ with many adhesions. The fistula in the loop of the ileum was closed, and the abdomen closed with drainage.

The boy recovered and up to the present time is well and healthy.

Case 5.—A boy of 12 years.

This case is interesting inasmuch as the symptoms pointed to kidney lesion rather than to appendicitis. He presented the following symptoms: pain of acute onset all over abdomen, but most prominent in the epigastric region, followed in a few hours with nausea and vomiting, slight tympanites and albuminuria, some traces of pus in the urine. Right rectu rigid; point of tenderness not over McBurney's point, but in the area above and behind the superior spine of the ilium. The right kidney appeared swollen and tender, pains extending down the right thigh; and one prominent symptom was the inability to extend the right leg, the leg being held in a flexed position at all times regardless of the position assumed in bed; leucocytosis, 16,000; operation was delayed until the leucocyte count ran up to 24,000, and the dulness on percussion extended to the edge of the right rectus muscle.

The operation consisted of intra-abdominal incision and the drainage of a large pocket of pus.

In a few days he was able to extend the leg completely, the pus disappeared from the urine, and the albuminuria cleared up. He made a rapid recovery.

This case might have been mistaken for a case of perinephritic abscess, but it proved to be a case of retrocolic appendicitis with abscess formation.

In conclusion, I will state that if the first and third cases could have been discovered and operated on earlier, the chances are that the prognosis would have been a good deal better. The fourth case could have been saved a lot of suffering and also much of the operating. But he proved a remarkable case for endurance. In a couple of cases I have had pneumonia of the right lower lobe resemble acute appendicitis; but the symptoms of pneumonia usually make themselves manifest in time to prevent unnecessary operation.

I believe that the leucocyte count should be taken into consideration in these cases, and one should be frequently informed as to the condition of the blood. I do not believe it is safe to use any other method of treatment than the operative in cases where we are reasonably certain we have an acute infection of the appendix. Let us make a careful diagnosis as early as possible, and then operate.

ANALYSIS OF 13,000 CASES FOR ERRORS OF REFRACTION*

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From October 1, 1890, to June 1, 1912, 13,000 patients were examined for errors of refraction in connection with the work in the Mayo Clinic, and this paper is an attempt to give a general outline of the methods of examination followed, a classification of the various types and a synopsis of a few of the especially interesting ones.

It is our invariable practice to use a cycloplegic in examining all patients under thirty-five years of age, and homatropin discs, $\frac{1}{50}$ gr., have been found to be very satisfactory for this purpose. In a few cases, where it was believed the results were not what they should be, atropin, 1 per cent, was used, and the same results obtained.

In young children and very nervous patients, atropin, 1 per cent, was always used for four days. Toxic symptoms were not observed in any case following the use of either cycloplegic.

The examination was divided and part made on two different days. The history of the case was taken and the patient carefully questioned in regard to occupation, general health, and nasal trouble, all of which may have a bearing upon the refractive error. The actual examination was then begun. This covered distance vision, muscular balance, ophthalmometer reading, and examination of the fundus by the ophthalmoscope. The refractive error was determined by the trial lens. When this was done, if the patient were tired or nervous or if it were late in the day, he was asked to return in the morning for the mydriatic. About one hour after the cycloplegic was applied, the patient was ready for examination. The distance vision was taken again, the error of refraction determined by the trial lens, and the fundus examined by the ophthalmoscope. With children and illiterates, we have had to depend almost entirely on ophthalmoscopic and retinoscopic examinations.

The patient was then asked to return, if it were possible for him to do so, after the effects of the cycloplegic had passed off, which would be the next or second day thereafter, and the lens which had been determined upon was placed in the trial frame, and the patient asked to read again from the test chart. In some cases, usually those with high degree of hyperopia, it was necessary to continue the mydriatic several days after the patient had begun to wear his glasses, in order to assist the muscles to accommodate themselves to the lenses, since, without relieving the accommodation, many young people would accommodate to a — lens.

The following case is one of many which demonstrates the reasons for using a cycloplegic:

Mrs. W. J., aged 22 years, came to us complaining of a constant headache, could not recognize people across the street, could not read or sew, had been told she was very near sighted, vision in each eye 20/40, with —1.50 sph. in both, vision = 20/15. She had been wearing this myopic correction for two years, and after she was put under atropin, 1 per cent, for four

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days, her vision was found to be R. 20/80-1; L., 20/80; with spherical +1.25 with +.25 axis 90, vision = 20/15 right eye; with spherical +1.50 with +.50, axis 90, vision = 20/15 left eye. Glasses prescribed were spherical +.25 with +.25, axis 90 right, and spherical +.50 with +.50, axis 90 left. One year later the patient was able to sew and read, and her distance vision was good, but she still had some trouble with her accommodation.

In all cases of headache, the differential diagnosis was made of eye-strain, or headache from other causes. I believe the eyes are chiefly at fault in the majority of cases.

Many persons with a high degree of refractive error never complain, while others with a very low degree, whose general health or nervous condition is not good, will be constantly having trouble, and a high degree of hyperopia and a very low degree of myopic astigmatism will give the most trouble, the latter often affecting the general health.

A great many patients come to this clinic after having undergone a serious operation, or having suffered from a severe illness, and complain that their eyes are failing. This is probably due to the fact that, before operation or illness, all their work was done with an effort, though they did not realize it, and that, on account of the general muscular relaxation following the operation or illness, they were unable to regain control of the muscles of accommodation, and hence believed their eyes to be weaker than before.

A short time ago, a mother brought her little girl to us, saying that the teacher advised an examination of the eyes, as the child had not been doing good work since her illness, although before that time she had been doing excellent work. A high degree of hyperopia was found.

When patients come to us for a change of their glasses, saying their eyes are failing, the ophthalmoscope often reveals one of the following pictures: (a) the vision is found to be low, and on ophthalmoscopic examination we may find a few white splashes and a few hemorrhagic spots along the arteries; or (b) the splashes may be surrounding the macula, and the arterial walls may be found to be sclerotic. This is diagnostic of albuminuric retinitis. In such cases life is apt to be a matter of months rather than of years.

Again, we may find a group of shining punctate dots in the macula region, due to senile changes for which little or nothing can be done.

Patients having toxic amblyopia usually complain that things look misty, or that they cannot read. The ophthalmoscope may show hyperemia of the papilla, or, later in the disease, an atrophic appearance of the temporal side of the nerve-head.

On the other hand, the blurred vision may be due to lues, in which case the ophthalmoscope will show a diffuse exudation or an indistinct disc. These cases are always referred to the laboratory for a Wassermann test.

Many persons come to us saying that their eyes have always been weak, and are now slowly failing. Very often they give a history of other members of the family also having weak eyes. We find retinitis pigmentosa which is slowly progressive, but in which there is usually enough sight preserved for the patient to get about. In all of the cases which I have seen none have been totally blind.

In the examination of a patient for a change of his lens, we frequently find an Argyll-Robertson pupil,—that early symptom of tabes,—but with the eyes normal in every other respect. These patients are invariably referred for a general examination.

The nose must also be considered in its relation to the eye, and every nasal abnormality should be taken into account as a possible cause of headache. Very often the first intimation of sinus trouble is indicated by symptoms referred to the eyes. When this occurs in a case which has a corrected error of refraction, the patient's first thought is that his lenses should be changed. Hence the oculist must understand the relation between the nose and the eye, and be prepared to treat nasal disease, if his patients are to obtain the relief they seek and expect, or else he must refer his patient to a rhinologist.

In view of the fact that, in a very large percentage of cases of migraine, a general examination and an examination of the nose and eyes will not reveal any cause, I have reached the conclusion that, in a great majority of cases, it must be called hereditary. This conclusion is greatly strengthened by the fact that in most of these cases a history of migraine can be traced back through several generations.

A SERIES OF CONGENITAL CATARACTS

In September, 1910, Mr. B. R., brought four children to us. Carrie, aged 12; Dennis, aged 9; Mary, aged 7; and Nettie, aged 6. Each had congenital cataracts; and upon taking their histories it was found that the mother had cataracts removed when a child, and it was thought prenatal worry was the cause of the cataracts in the children, as the trouble was noticed when they

were babes. All of them had been operated on before coming to us. Carrie, with correction, vision 20/20, and Dennis had convergent alternating squint. It was found necessary to perform another operation on each of the three youngest, after which glasses were given, and the children could see to get about and could distinguish objects around the room. All of the children had been in a school for the blind, depended on their sense of touch, and had yet to learn the use of their eyes.

J. P., aged 12 years, was brought to us with congenital cataracts. His mother noticed that, at three months of age, the babe had some trouble with the eyes. He had one brother and one sister with the same trouble, but I could not get a history of cataracts on either the father's or mother's side.

Mrs. C. H., aged 38, gave a history of eyes never having been good, but did not think that the vision had decreased in the last few years. On examination, small congenital cataracts were found in the center of each lens, with vision to either side about 1/3. Her mother and grandmother had each had the same trouble.

January, 1907, Mrs. A., aged 43, came complaining of severe pain in the left eye. Upon examination her vision was found to be merely a perception of light. The tension was + and the media full of floating specks. Glaucoma was diagnosed, and iridectomy advised, and an operation was performed the next morning. The eye became quiet after the operation, but there was no improvement in the vision, which had been low since the right eye had been injured and enucleated sixteen years before.

June 4, 1907, Will, aged 15, son of patient Mrs. A., was brought to us. His left eye had been enucleated when a small child. He gave a history of a blind eye which had become protruding and painful and therefore had been removed. The sight of the right eye was never good, and for six years had been blind; he had been told he had congenital cataract and wanted it removed; the lens was found to be opaque and calcareous; the eyeball was shrunken, there was only perception of light, and it being apparent that no beneficial results would follow; an operation was not advised.

June 4, 1907, another son of Mrs. A., Paul H., aged 13, who had always been very near-sighted, was examined. In December, 1906, he had accidentally discovered that he could not see with his left eye. On examination a detached retina was found, and the vision in right eye was 5/200 with a correction of sph. —6, —1.50, axis 180; vision=20/60 —1. Last December (1911) the boy was returned to us with the left eye inflamed and very irritable, the lens opaque, tension +, and glaucoma was diagnosed. Evisceration was advised, and an operation performed. Vision in right eye is now 20/40 with correction.

May 13, 1908, he was followed by another member of the family, Ellis, aged 7, who had a high degree of myopia with nystagmus, vision 20/200, with sph. —7. lens, vision 20/80 —. He was given this correction in both eyes. In April, 1909, upon another examination, it was found that the vision remained the same. In July, 1909, he returned with the vision gone in the right eye, and a detached retina was found. Vision in the left eye is now (1912) slowly failing, and the child is with his brothers in the school for the blind.

In December, 1911, Allen, aged 4, the youngest and last member of the same family, was brought to us. The parents thought his eyes were good until a year ago. They then made a test of each eye separately, and found the left eye to be blind. He had detached retina, and the right eye was very myopic. The father of the family and one son have normal vision. One child had died, at the age of six months, with convulsions.

In some patients with high myopia, K.I. has been found very beneficial. After using it for six weeks or two months, the vitreous is clearer and vision improved.

The cases examined have given the following results, which it is believed will prove to be general averages:

Presbyopia (17.5%)	2279
Hyperopia (12.4%)	1615
Hyperopic Astigmatism (13.1%)	1708
Compound Hyperopic Astigmatism (9.1%)	1250
Myopia (6.2%)	815
Myopic Astigmatism (6.8%)	895
Compound Myopic Astigmatism (5.7%)	751
Mixed Astigmatism (2.3%)	305
Myopic in one eye and Hyperopic in the other (½%)	185
Cataracts (4.1%)	572
Exophoria (4.3%)	562
Esophoria (4.2½)	555

In 2,625 cases (20.2%) no glasses were prescribed, although every symptom of eye-strain was mentioned by the patient. In the majority of these cases a mydriatic was used, and nothing being found to account for the symptoms complained of, the cases were returned to the family physician for general treatment.

REPORT OF FOUR CASES OF TUBAL PREGNANCY*

By T. F. Riggs, M. D.

PIERRE, S. D.

Three terms often used synonomously by the profession are "ectopic gestation," "extra uterine pregnancy," and "tubal pregnancy." A moment's thought will show you that ectopic gestation is the more general term, including both the others as well as cases in which the pregnancy occurs in the uterus, but outside of the normal uterine cavity. Extra uterine pregnancy, in turn, includes tubal pregnancy, and also cases in which the fertilized ovum becomes implanted at some point between the ovarian follicle and the tube. Tubal pregnancy is a self-explanatory term.

Text-books you have always at hand, and articles in the magazines are numerous, therefore, no attempt at an exhaustive treatise will be made in this paper. Instead, it is the brief report of certain work done in my practice in South Dakota, and does not include cases obtained through the larger clinical facilities of a hospital service in the East.

The etiology of ectopic gestation is very indefinite, though, according to J. Whitridge Williams, the more plausible explanations of the occurrence of this affection may be grouped under two heads: (1) conditions which interfere mechanically with the downward passage of the ovum; (2) physical and developmental conditions which favor decidual formation in the tubes.

Whatever the cause, statistics, even of recent semi-decade, shows that the condition is one of increasing frequency. Possibly the increase is more apparent than real, owing to more proficient diagnosis. However that may be, the condition is one worthy the attention of every practitioner. There is no question but that some victims of ectopic gestation have survived without surgical aid, but this is not true of the majority, and in this age of surgical proficiency there should be no question about the proper treatment.

Since there is apparently no universal cause for the development of a pregnancy outside of the normal tract, the point of paramount importance to patient and practitioner is the ability properly to diagnose the presence of a condition inimical to the welfare of the sufferer, and the more refined diagnosis of the exact point of implantation of the ovum may be left to post-operative examination.

Unfortunately, the signs and symptoms of this condition are not so absolute as some text-books would lead one to expect, and the more one sees of this and other abdominal lesions, the more one appreciates Osler's saying that "the only certain thing in medicine is the uncertainty of things in the abdomen."

In view of this fact, if you will bear with me to hear a brief citation of the histories of four cases of tubal pregnancy which have occurred in my practice, it is hoped you will not find the time ill spent. Allow me to state that these cases were all referred to me by one of my associates, Dr. A. H. Youngs, and with the diagnosis made in all but one.

Case 1. Mrs. G., aged 36 (Dec. 4, 1909); three children; no miscarriages. Last period, four months ago. Pregnancy normal until five days before admission, when she was prostrated by a sharp abdominal pain low in the right quadrant. There being no apparent improvement, she was brought twenty-four miles in a wagon and forty miles by rail to the hospital. Examination showed marked shock, pallor, subnormal temperature, no perceptible radial pulse, rigid abdomen, an ill-defined, but firm, slightly crepitant mass in the hypogastrium, and a scanty, pink, watery vaginal discharge.

Because of the patient's general condition, the history of five days' duration, and the presence of the firm mass, operation was delayed, and supportive treatment instituted. At operation, forty-eight hours after admission, a midline incision encountered the bladder, empty, but with its fundus adherent at a point an inch below the umbilicus. The bladder was freed, the abdominal incision continued downward to the pubes, and a nick in the bladder made at the first incision was closed by three rows of continuous No. 1 catgut. The entire pelvis was found filled with a firm blood clot, which was scooped out quickly; the right tube, ovary, and fetus were caught, brought up and removed; closure by layers in the usual manner, with a wick drain to the peritoneum at the lower end of the incision. A rapid dilatation and curettage was done, considerable thickened endometrium being removed. (This I now do as a routine, if the patient's condition

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

permits, to obviate a later operation of this kind, as was necessary in two of my earlier cases.) A retention catheter was inserted, hypodermoclysis started, and the patient put to bed. Convalescence was uninterrupted, save for the later development of a thrombosis, first in the left leg and then in the right leg. The patient, however, made a complete recovery, and has since passed through a normal labor under the care of my colleague, Dr. H. T. Kenney.

Case 2. Mrs. T., aged 38 (Jan. 1, 1911). No children; three miscarriages; last period, fifty days ago.

Two weeks before admission the patient had what was thought to be another miscarriage, the membranes being seen and examined by two physicians. For ten days following, the patient was comfortable, but four days before admission she had a sharp pain in the right lower quadrant, which lasted but a short time. Two days later, there was a second attack of sharp lancinating pain, which required morphia, but the patient recovered and felt well; no pallor. On rising on the morning of admission, she was almost at once prostrated with pain, and marked pallor and shock followed. Red blood count, 3,500,000. Pelvic examination showed a full soft abdomen and a small mass behind and to the right of the uterus. She was removed to the hospital at once. The abdomen was found filled with fresh unclotted blood, which was simply mopped out after securing and removing the right tube and ovary; closure in the usual manner. Recovery uncomplicated.

In this case the discharge of the decidua with subsequent uterine flow blinded the diagnosis, but had a careful vaginal examination been made (and in this I was at fault for I saw the patient at the time of the second attack of pain), without doubt the diagnosis could have been made and the patient saved much suffering.

In this case the absence of any palpable mass of blood clot showed the hemorrhage to be free and I am of the opinion that it would have been better surgery to have brought the hospital to the patient than to have taken the patient to the hospital. However, the patient is alive and well today.

Case 3.—Miss T., aged 18. (Oct. 29, 1911.) No history of pregnancy. Periods always regular, but very painful before flow started. Ten days previous to admission, her family physician had done a dilatation and curettage according to plans made a month previous, in the hope of relieving the dysmenorrhea. Menstrual flow slight, but with severe pain, lasting five days. Two days before admission there was a recurrence of the abdominal pain, but more sharp in character, slightly higher in location, and definitely to the right of the midline. At this time a pink, watery, vaginal discharge was noticed. There was no fever. On admission, examination showed slight rigidity of the right rectus, and a small mass behind and to the right of the uterus.

Immediate operation disclosed a few small blood clots in the peritoneal cavity and the right tube oozing slowly. Removal of the tube and closure in the usual manner resulted in a perfect recovery. Curettage negative.

Case 4.—Mrs. H., aged 30. (Dec. 18, 1911.) Two children, no miscarriages, menses regular and not painful. Last period six weeks previous to admission. Complaint, pain in left side, and a vaginal discharge, which had continued irregularly for two weeks past. The pain, however, had been especially sharp and lancinating upon two occasions, four and two days, respectively, before admission to the hospital. There was also considerable irritation and tenesmus of the rectum.

Examination showed a small tender mass to the left of the uterus. Immediate operation disclosed the left tube distended, but not bleeding and its fimbriated end deeply imbedded in the wall of the lower portion of the sigmoid. The tube and ovary were removed entire, and the raw area of the bowel, which was thin and dark, but without odor, was covered over by invaginating with mattress sutures. Usual closure. Curettage showed thickened endometrium.

Immediate recovery, excellent, but on the fourth day the patient began to run a slight fever, for which no cause could be found, until on the ninth day a mass was made out, apparently located on the rectal wall and rather high up. The patient's condition was critical (temp., 101.6°; pulse, 140), but a vaginal puncture was made, and about half an ounce of pus (with colon odor) was obtained.

Convalescence thereafter was uninterrupted and the patient made a perfect recovery.

There can be little question but that this abcess was due to organisms coming through the almost necrotic wall of the sigmoid. It is an example of a complication which I had never before seen, although some ten months ago I removed a hemato-salpinx, which for three years

had been periodically discharging per rectum. Possibly this had been originally a tubal pregnancy, which emptied itself by perforating into the bowel.

These four cases were all those of ampullar pregnancy, the first with rupture and extrusion of the fetus and slow hemorrhages; the second, a rupture with rapid hemorrhage in a case obscured by what earlier seemed a miscarriage; the third, a beginning tubal abortion in an unmarried woman with a history of severe dysmenorrhea; and the fourth, one which would probably have been a tubal abortion into the bowel.

In none of these cases were there demonstrable lesions due to gonorrhea or previous pelvic inflammation.

In all, the only constant points of aid in diagnosis were the sharp agonizing pain on the affected side of the pelvis, the peculiar pink, watery, vaginal discharge, and the finding of the mass on bimanual examination.

From so small a series one is not justified in drawing conclusions, save as it shows that we are all guilty of "sins of omission" and emphasizes the words of Dr. J. M. T. Finney on "the fundamental importance of attention to detail in matters of diagnosis."

BOOK NOTICES

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M. D., President of the American Proctologic Society; Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine. Revised and rewritten, second edition. 338 pages. Royal Octavo—172 illustrations—including four colored plates. Price, $4.00.

Dr. Hirschman, in this book, gives his own personal experience, and tells the reader as briefly as possible his method of examination and treatment. This is what the physician needs in his daily practice.

He wants to know the author's technic and treatment. The many illustrations are clear and comprehensive. The use of the X-ray with the aid of bismuth in the study of the lower bowel is clearly shown. It should be used in all obscure cases.

With the modern methods of examination and treatment, as illustrated by the author, at the command of the physician, there should be no excuse for his making a snap shot diagnosis, and treating the patient accordingly. —Harrington.

Operative Obstetrics, by Edward P. Davis, Professor of Obstetrics, Jefferson Medical College, Philadelphia. An octavo of 483 pages, with 264 illustrations. Cloth, $5.50 net; Half Morocco, $7.00 net. Philadelphia and London. W. B. Saunders Company, 1912.

This work offers a much needed resume of present day operative obstetrics, presented in a most practical form. A concise statement of methods of operating in obstetrics is given, together with a choice of procedure warranted by facilities for proper technique, continually keeping in mind the surgical specters, hemorrhage and sepsis.

The work is pre-eminently practical, illustrations are plentiful and well chosen, and statistics of comparative mortality and morbidity for mother and child of various procedures are culled from the best authorities and largest clinics and presented in good working form. Facility for exhaustive study is given by a most comprehensive bibliography appended to each subject.

Among the articles especially worthy of note are: Obstetric anesthesia, abdominal section during pregnancy, forceps delivery and version, giving a remarkably succinct resume of indications, justifiable conditions, contra-indications and technique.

Due attention is given to the increasing frequency of Cesarean section and its superiority over other procedures in reduction of mortality of both mother and child in central placenta praevia and deformed pelvis, accentuating the safety of Cesarean section as a primary operation and the danger after vaginal manipulations of any kind.

An able section on the surgery of the newborn concludes a most noteworthy book, valuable alike to student, general practitioner and specialist.

R. T. La Vake, M. D.

A Text-Book of Gynecology, by William Sisson Gardner, M. D., with one hundred and thirty-eight illustrations in text. D. Appleton & Co., New York and London, 1912.

If there is a place in medical literature for an epitome of any subject, this is a good one. The book is stated by the author to be prepared for the overcrowded medical student, and as a boiled down book it may serve that purpose. The facts are briefly and succinctly stated and many rare diseases and subjects which really should not have place in a text-book on gynecology are omitted. While the subject is very well treated in a brief way, one can hardly agree with the author that it constitutes a thorough presentation of the subject. Inasmuch as the author lays no claim to competing with the more pretentious books on the subject, a discussion of the value of such brief works probably should not come in here. The author very briefly describes all of the diseases of the genital tract, with their medical and surgical treatment.

The illustrations, while not elaborate, are clear and easily understood. In each case the author has selected usually not more than one operation for each condition, and describes his favorite operation clearly and plainly, and, as he says his aim is brevity, he certainly has succeeded. J. C. Litzenberg.

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CRAZY ART.

The recent exhibition in New York and Chicago of the Cubists and Futurists and other Impressionistic schools of art has interested many and excited a few who know or think they know something of the artistic temperament.

The jumble of pictures, the effort to paint the primeval impressions of what one thinks he sees but not to portray the real, leads critics to speculate as to what the "new thought" artists actually mean by their remarkable display. The reproductions in the lay press give one a queer sensation.

Theodore Roosevelt speaks of the exhibition as "the lunatic fringe among the votaries of any forward movement," and says "there is no reason why people should not call themselves Cubists, or Octagonists, or Parallelopipedonists, or Knights of the Isosceles Triangle, or Brothers of the Cosine, if they so desire; as expressing anything serious or permanent, one term is as fatuous as another." One picture is called "a naked man going down stairs." Looked at by the average man it resembles a junk pile of violins, shingles, door frames, window sash and slab sides. There is no possibility of finding a figure in the pile yet there are some of the courageous who try to make themselves think they can see the figure dimly outlined when as a matter of fact they are conjuring up an image which exists only in their excited brain cells.

A second picture is an attempt to outline a "Woman with a Mustard Pot" and it really looks as if an insane epileptic had been pushed through a saw mill with parts of the face gone and another part horribly distorted. Incidentally there is no mustard pot. She has probably swallowed it, contents and pot, perhaps that is responsible for the sad and idiotic expression.

Dr. Robert T. Morris in a letter to the New York Evening Post evidently has hit upon the solution when he says:

"It is not a fanciful hypothesis to assume that post impressionism with its disharmonies, incoherences, and 'perilous abstractions' may belong to one particular form of psychosis—*dementia precox.*"

It is rumored that one of the artists who is responsible for some of the queer portrayals has committed suicide and that one had become insane. If these people could be subjected to psycho-analysis perhaps many sexual perverts would be found among them thus bearing out Dr. Morris' opinion.

Some of the pictures are indecent, some of the sculptures are obscene and the whole show is either a hoax in which a new school of artists have reached the end of their finances and have suddenly decided to create a commercial sensation or the whole school is mad, actually crazy.

To think that such hideousness can endure while so much of beauty remains in the world is unbelievable. We have enough hysteria and insanity in ordinary life without putting some of it on canvas or in clay to show future generations what "fools we mortals be."

FORCED FEEDING OF SUFFRAGETTES.

England is in trouble with the militant suffragette and the situation is becoming exceedingly acute.

When the first hunger-strikers were put in jail for disorderly conduct some fertile mind conceived the idea of bringing the nation to its senses and granting "Votes for Women" by the starvation route. The bluff was quite successful and many of the prisoners were pardoned because the authorities feared they would die in prison and thus arouse greater activity and perhaps loss of lives among militant women.

G. Bernard Shaw was outspoken in his comments when he suggested that if women wanted to die from starvation it was their own affair

and they should be allowed to die! Why not? Many of the prisoners may be fanatics, but they are not considered legally insane and if not insane they should be expected to have morbid desires. If, however, the authorities class them among the mildly and irresponsible insane they must be forcibly fed as an humanitarian act. The process of forced feeding does not work well evidently, as many of the women resist the feeding, or vomit their food immediately afterward. The result is rapid emaciation, extreme weakness, nervous breakdowns and general ill health.

Mrs. Pankhurst, the leader, who admitted her guilt in court and who was sentenced to three years' imprisonment, is on a hunger-strike and has been removed from prison. It is rather remarkable for a woman of her reputed intelligence to adopt such means to secure her freedom. She has been reduced to a form of nervous exhaustion already and doubtless the government will speedily grant her her parole. The authorities are obliged to consider the sentimentalism of the country and to guard against the anarchy which might arise if one of the leaders died from starvation even when food was offered and refused.

If a "martyr" died from starvation or forcible feeding it would be a tremendous recruiting agent in the antisocial cause. Insurrection would increase and the desperate methods that would follow in the wake of a voluntary suicide might be beyond the cope of the police.

A writer suggests a milder remedy, deportation from the country of all prisoners who refuse food in jail. This would do away with much of the trouble and would doubtless have a very quieting effect on others who planned to adopt suicidal methods. There is nothing so disheartening as to be deported from one's own country, particularly if accompanied with no option of return.

It is rather strange that forced feeding among the insane is at such variance with the forced feeding of a suffragette. In our hospitals for the insane it is rarely that a patient dies under such treatment. Only in those who are violently and continuously excited does death take place from starvation even when a tube is used for feeding purposes. Many lives are saved and many recoveries occur among lunatics who refuse food because of their delusions.

Perhaps the methods of feeding are different, certainly the attempts to disgorge food are the same, yet the insane live while the suffragette becomes impoverished. In this country nasal feeding is more generally employed than feeding by the gag, mouth pryers and esophageal tube. It is certainly more humane to introduce a small tube through the nares than to mutilate the mouth and throat by harsher means.

Fortunately the conditions in America are decidedly different than those in England and we shall never be called upon to meet a crisis that is so embarrassing across the Atlantic. The women of this country will vote—if they choose to do so.

REPORTS OF SOCIETIES

PARK REGION, UPPER MISSISSIPPI, RED RIVER AND CLAY-BECKER SOCIETIES

An event unique in the annals of Minnesota medical societies was the joint meeting of four organizations, the Park Region District, the Upper Mississippi, the Red River Valley and the Clay-Becker Medical societies, at Wadena on April 8.

This was the first attempt of this nature in this section, and an interesting program was presented.

The officers of the various societies are:

Park Region District Medical society—President, A. J. Gilkerson, Osakis; vice-president, A. F. Gosslee, Deer Creek; vice-president, R. St. J. Peery, Parkers Prairie; secretary-treasurer, A. M. Randall, Ashby.

Upper Mississippi Medical society—President, William Reid, Deerwood; vice-president, A. M. Desmond, Akeley; secretary, A. W. Ide, Brainerd; treasurer, Paul Kenyon, Wadena.

Red River Valley Medical society—President, H. H. Hodgson, Crookston; vice-president, O. H. Olson, Erskine; secretary, F. F. Dryden, Crookston.

Clay-Becker County Medical society—President, J. E. Carman, Detroit; vice-president, V. E. Verne, Moorhead; secretary-treasurer, E. R. Barton, Frazee.

The program:

Intraperitoneal Hemorrhage; Causes, Symptoms, Treatment. Dr. Archibald MacLaren of St. Paul. Discussion opened by Dr. A. W. Ide of Brainerd.

Some Problems in Preventive Medicine; Dr. O. M. Haugan, Fergus Falls. Discussion opened by Dr. Olof T. Sherping, Fergus Falls.

The Treatment of Cystitis; Dr. R. A. Beise of Brainerd. Discussion opened by Dr. J. G. Millspaugh of Little Falls.

Coryza; Dr. C. O. Estrem, Detroit. Discussion opened by Dr. J. E. Carman, Detroit.

Trichiniasis; Dr. S. Marx White, Minneapolis. Discussion opened by Dr. J. A. Thabes of Brainerd.

Ectopic Gestation; Dr. A. C. Baker, Fergus Falls. Discussion opened by Dr. A. D. Haskell, Alexandria.

The Management of Puerperium; Dr. John C. Koch, Blackduck. Discussion opened by Dr. B. F. Van Valkenberg, Long Prairie.

The Significance of Vomiting; Dr. W. L. Burnap, Pelican Rapids. Discussion opened by Dr. H. H. Leibold, Parkers Prairie.

Public Address: Cause and Treatment of Cancer (illustrated with lantern slides); Dr. H. E. Robertson, Minneapolis.

MISCELLANY

ALUMNI MEETINGS.

All alumni associations wishing to have reunions at the meeting of the A. M. A. in Minneapolis, Minn., next June, are requested through their secretaries to notify Dr. E. K. Green, secretary of the local committee, relative to any arrangements which they would like to make, and whether they intend to provide any entertainment or not; if so, what sort of entertainment.

NEWS ITEMS

Dr. C. F. Coulter of Wadena, Minn., is reported to be seriously ill.

Dr. W. F. McCarthy, Richmond, Minn., has removed to Delano, Minn.

A $50,000 addition is to be built to the Kahler Sanitarium in Rochester, Minn.

Dr. Knut Wadel has returned from Europe, and resumed practice at Portland, N. D.

Dr. H. J. Shelver and Miss Hannah Johnson were recently married at Appleton, Minn.

Dr. H. W. F. Law of Hannah, N. D., has gone to Chicago to take post graduate work.

Dr. C. J. MacGurren and Dr. G. F. Drew have formed a partnership at Devils Lake, N. D.

Dr. E. Habeman of De Smet, S. D., has moved to Willow Lake, S. D., and will continue practice there.

Dr. and Mrs. C. H. Mayo, Rochester, Minn., have returned from a trip of several weeks in Florida.

Dr. R. J. Merrill, Amboy, Minn., is spending several weeks in Chicago, taking a post graduate course.

The new Loretto hospital at New Ulm, Minn., is nearly completed, and will be ready for occupancy very soon.

Dr. O. W. McClusky of Carrington, N. D., has gone to Chicago to take special work in eye, ear, nose and throat.

The hospital at Crosby, Minn., is having a third floor added, which will give accommodations for twenty more beds.

Dr. S. S. Blacklock, Hibbing, Minn., is at the Mayo hospital, Rochester, where he was operated on for appendicitis.

Dr. Krekore Mallarian of Fargo, N. D., has decided to move permanently to California on account of business connections there.

Dr. Frank O. Muralt and Miss Pearl Vinge were recently married in Morris, Minn., where Dr. Muralt has been practicing for two years.

The Union Hospital Association of New Ulm, Minn., has filed articles of incorporation for $75,000. A site for a hospital has been agreed upon.

Dr. Edwin Folsom of Fargo, N. D., died March 26th, after an illness lasting several weeks. Dr. Folsom was a veteran of the Civil War.

Dr. Gustavus W. Barck, an army physician in the Civil War and a pioneer practitioner of Albert Lea, Minn., died very suddenly on March 28th.

The plans for the building of the Lutheran Hospital Association at Watertown, S. D., have been adopted. The plans adopted provide for 59 beds.

Dr. J. C. Kyllo of Zumbrota, Minn., until recently associated with his brother, Dr. A. L. Kyllo at Grantsburg, Wis., has now located at Spring Grove, Minn.

Dr. W. J. Richardson, Fairmont, Minn., was seriously injured by falling from a ladder. His pelvis was broken, which will confine him to his house for several weeks.

The Swedish hospital of Minneapolis has

again undertaken the management of a garden, which is to be operated by the nurses and patients. A similar venture last year proved very successful.

Dr. R. G. Perkins, Rochester, Minn., will leave for London, England, about September 1, where he will take a course of study on tropical medicine, and then practice in Asia as a medical missionary.

Dr. Jacob Karn, who practiced medicine for over twenty-five years at Ortonville, Minn., died recently at San Diego, Cal., where he had gone in search of health. Dr. Karn was prominent in medical circles, and was twice mayor of Ortonville.

Dr. J. G. Lamont of Cando, N. D., has been elected superintendent of the Tuberculosis Sanitarium at Dunseith, to succeed Dr. J. P. Widmeyer, who resigned to resume the practice of medicine at Rolla. The legislature recently appropriated $35,000 for additional equipment to the sanitarium.

PRACTICE FOR SALE

Unopposed village and country practice, $2,300 per year, 90 per cent collectable. Good country, good schools and churches. Mixed population, Americans predominating. Practice goes to purchaser of residence. $1,200 down, balance on time to suit. Address G. G., care JOURNAL-LANCET.

PRACTICE FOR SALE

$1,000.00. The biggest snap in the state of Minnesota. In a charming little city of 3,500. A $5,000.00 general and surgical practice, with complete outfit and office lease and furnishings. Outfit includes handsome oak furniture, microscope (B. & L.) centrifuge, Sphygmomanometer, Scheidel Western X-ray coil, Wall plate. A complete surgical and medical equipment that cannot be duplicated for less than the price asked. Will give good introduction. Address L. A., this office.

PRACTICE FOR SALE

The practice of the late Dr. J. W. McDonald, Masonic Temple, Minneapolis, is offered for sale, with his library, surgical instruments, chairs, tables and complete office supplies. Address M. M., this office.

PHYSICIAN WANTED

Well known Sanitarium in the twin cities wants a physician to assist part time, on a salary. Address K. M., this office.

PHYSICIAN WANTED

A Norwegian physician, with good hospital training. Excellent opening. No money required. Must be sober and industrious. State age, experience, and references. Address L. E., this office.

PRACTICE FOR SALE

An unopposed practice in the southern part of Minnesota for sale; in town of 500 population. Write for full information. G. B., care this office.

FOR SALE CHEAP

One Bausch & Lomb, late model B. B. bacterial microscope, cost $90; large bell glass cover, cost $2.50; bell glass covered stand for stains, cost $5.00; centrifuge, cost $7.50; French wired skeleton, extra good, cost $35.00. Total cost, $140.00. The first check for $70.00 takes the whole lot, others will be returned. A. D. Hard, M. D., Marshall, Minn.

PRACTICE FOR SALE

A well established, unopposed practice in village of 400 given away to the purchaser of my driving outfit. Collections 97 per cent. Address M. A., care this office.

PRACTICE FOR SALE

Established practice in live North Dakota town. A rare chance for a recent graduate. Has paid $10,000 in last 2½ years. All for $500 cash, including fine office fixtures complete. Address S. R., care Journal.

AMBULATORY SPLINT FOR SALE

An ambulatory with pelvic attachment, cost $55; never been used; will sell for $27.00. Chas. T. Granger, M. D., Rochester, Minn.

SANITARIUM MANAGER WANTED

A good M.D. is wanted to act as physician and manager of a sanitarium near the Twin Cities. Write to E. J. Smith, 268 E. Annapolis St., St. Paul, Minn., giving particulars and salary expected.

Doctor: If you want practical postgraduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JANUARY, 1913

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1												1			
Albert Lea	4,500	6,192	7													2		
Alexandria	2,681	3,001	5	3		1												
Anoka	3,769	3,972	6															
Austin	5,474	6,960	9	1		2	1									1		
Barnesville	1,326	1,353	3												1			1
Bemidji	2,183	5,099	7			2								1				1
Benson	1,525	1,677	1															
Blue Earth	2,900	2,319	5			1												
Brainerd	7,524	8,526	8													1		1
Breckenridge	1,282	1,840	2															
Canby	1,100	1,528	1															
Cannon Falls	1,239	1,385	1			1												
Chaska	2,165	2,050	*															
Chatfield	1,426	1,226	3															1
Cloquet	3,074	7,031	10												1			2
Crookston	5,359	7,559	9		1											3		
Dawson	962	1,318	1															
Detroit	2,060	2,807	2															
Duluth	52,968	78,466	81	8	3	11					1			1	2	6		3
East Grand Forks	2,077	2,533	2															
Ely	3,572	3,572	2			1												
Eveleth	2,752	7,036	5			2												2
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	10			2									1	3		
Fergus Falls	6,072	6,887	5															2
Glencoe	1,788	1,788	4	1		1												
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	1															
Hutchinson	2,495	2,368	3		1													
International Falls		1,487	2			1												
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	4			1												2
Le Sueur	1,937	1,755	3			2												
Little Falls	5,774	6,078	4	1		2												
Luverne	2,223	2,540	1			1												
Madison	1,336	1,811	2													1		
Mankato	10,559	10,365	17			3								1		1		
Marshall	2,088	2,152	3															
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	395	32	7	71	5	2	2					1	11	27	5	23
Montevideo	2,146	3,056	3													1		
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	11	1		1	2									1		
Morris	1,934	1,685	1		1													
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	10			3										1		
Northfield	3,210	3,215	1													1		
Ortonville	1,247	1,774	2													1		
Owatonna	5,561	5,658	11	1		2												2
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	2												1			
Red Wing	7,525	9,048	11	1	1	1										1		1
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	2	1														
Rochester	6,843	7,844	24	2												7		1
Rushford	1,100	1,011	4													1		
St. Charles	1,304	1,159	2			1												
St. Cloud	8,663	10,600	8	2	1										1	1		
St. James	2,102	2,102	4															
St. Paul	163,632	214,744	239	26	3	35	2	1	2		2	2		3	4	10	1	6
St. Peter	4,302	4,176	2															
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	2	1														
Sleepy Eye	2,046	2,247	1		1													
South St. Paul	2,322	4,510	2													1		
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	16			3										1		1
Thief River Falls	1,819	3,174	2															
Tower	1,111	1,111	0															
Tracy	1,911	1,826	3			1										1		
Two Harbors	3,278	4,990	8			2					1				1			
Virginia	2,962	10,473	7			1												1
Wabasha	2,622	2,622	3			1												
Warren	1,276	1,613	1											1				
Waseca	3,103	3,054	6			1										2		
Waterville	1,260	1,273	2			1												1
West St. Paul	1,830	2,660	4			2												
Willmar	3,409	4,135	4															1
Winona	19,714	18,583	14	2		2										1		
Winthrop	813	1,043	0															
Worthington	2,386	2,385	2	1												1		

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	3															1
Aitkin	1,719	1,638	3		1									1				
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	3		1													
Biwabik		2,690	5	1	1		1											
Bovey		1,377	0															
Browns Valley	721	1,058	1															1
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	2									1					1	
Chisholm		7,684	11		1	2	1								2	1		
Coleraine		1,613	1															
Delano	967	1,031	2	1											1			
Farmington	733	1,024	0															
Fosston	864	1,055	2															
Frazee	1,000	1,645	1															
Glenwood	1,116	2,161	1													1		
Grand Rapids	1,428	2,239	2															
Hibbing	2,481	8,832	3															
Jackson	1,756	1,907	1															
Janesville	1,254	1,173	2													2		
Kenyon	1,202	1,237	0															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	1															
Long Prairie	1,385	1,250	2															
Madelia	1,272	1,273	0															
Milaca	1,204	1,102	1													1		
Mountain Lake	959	1,081	0															
Nashwauk		2,080	0															
North Mankato	939	1,279	1	1														
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	3													1		
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	4													1		
Pine City	993	1,258	2													1		
Plainview	1,038	1,175	1													1		
Preston	1,278	1,193	1															
Princeton	1,319	1,555	0															
St. Louis Park	1,325	1,743	2	1	1													
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	1															
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	1			1												
Wadena	1,520	1,820	1		1													
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	5	2														
Wheaton	1,132	1,300	1			1												
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	*															
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			4		1											1		
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	1		1												
Fergus Falls, Hospital for Insane			14	3		1								1				
Hastings, Asylum			1	1														
Minneapolis, Soldiers' Home			5			1												
Owatonna, School for Dependents			1			1												
Red Wing, State Training School			0															
Rochester, Hospital for Insane			5															
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			5	2		1												
St. Cloud, State Reformatory			0															
Stillwater, State Prison			2	1														
OTHER PARTS OF STATE			846	43	13	111	6	5		1	5	1		7	27	44	4	59
Total for state			2007	141	39	282	18	9	0	1	9	4	0	17	54	131	11	113

*No report received. Registrar not doing his duty.

155 stillbirths not included in above totals.

Coffee Drinking Dissipates Energy

Any article of diet taken into the economy which acts as a "whip" to flagging energy, is but temporary in its **apparent** benefit. In the end, it **subtracts** from the **total energy** of the individual. This, in the case of Coffee, is a manifestation of the law of alkaloidal "action and reaction;" caffein being the alkaloid in coffee.

The temporary **feeling** of increased energy, after having taken the usual cup of coffee (or two cups) is, in a large majority of individual cases, soon followed by a feeling of lassitude which more than counterbalances the temporary "spurt" of **artificially** aroused activity of mind or body. Hence, we may truthfully affirm that, in summing up its effect, coffee drinking dissipates energy.

On the other hand

POSTUM

—a most agreeable beverage—can in no manner delude the user, because its effect is simply and directly to increase warmth and add a little **real** nourishment.

In those individual patients where caffein is particularly irritating (and they are legion) the physician can find ready and efficient help in recommending Postum.

Postum now comes in new, convenient form, called **Instant Postum.** It is so processed that only the soluble portions are retained.

Instant Postum requires no boiling. A spoonful with hot water, and sugar and cream to taste, produce a perfect cup **instantly**—uniform in flavour, wholesome, delicious.

The "Clinical Record," for Physicians' bedside use, together with samples of **Instant Postum, Grape-Nuts** and **Post Toasties** for personal and clinical examination, will be sent on request to any physician who has not yet received them.

Postum Cereal Company, Limited, Battle Creek, Michigan, U. S. A.

PUBLISHER'S DEPARTMENT

WONDERS ON ROOF OF CONTINENT MAKE GLACIER PARK MARVEL-LAND

No other country has such a remarkable chain of national parks as the United States. Each of these playgrounds which Uncle Sam dedicated to the people is entirely dissimilar from the other and, in some respects, Glacier Park, the newest of the government's nature preserves, is the most distinctive of the collection.

The explanation of this rush, of "See America First" sightseers to the marvel-land in northwestern Montana is the same as applies to the public-press beauty contest which turns all eyes upon the prettiest girl in town.

Glacier Park is a surpassing scenic-beauty of such distinct type that it is in a class all by itself in this country, it being appropriately characterized as the Switzerland of America. Consequently those that see it are enraptured by its inspiring landscape charms and they all go back home carrying with them an adoration for the land of mountain grandeur. If they'd live a thousand years, the picture would still be photographed in memory.

This soul-seizing scenic-enthusiasm which returning tourists cannot shake off has worked as magically for Glacier Park as any tale ever told by explorers fresh from their discovery of a new land of surprises. Thus, the tourist who has beheld this top-of-the-continent beauty spot is and will continue to be the greatest contributing factor in popularizing Glacier National Park.

The eye itself is the only true photographer. The camera does pretty well, but color plates are needed to reproduce nature's gorgeous garb if you are going to the picture to one who has already photographed the same scene with his own vision.

In providing for the accommodation of the tourist in the park, nature has not been marred by the unsightly buildings of man. Instead, log chalet villages have been built at convenient distances apart for the traveler. These are after the Swiss style of architecture and they lend a picturesqueness to the wild surroundings. The unique timber lodges are situated on the shores of the larger lakes of which there are 250 in the park. These placid bodies of land-locked water are fed by sixty living glaciers, the largest of which is Blackfoot Glacier, five miles in breadth.

Five means of travel may be resorted to in touring the park, automobile and horse stage, by which the main points of interest connected by highways are to be reached, launches which ply the big lakes in their canyon-like basins between mountains towering five thousand feet above the waters' edges, and those who desire to penetrate the mountain recesses and across the Continental Divide can follow the winding trails on horseback or afoot.

The Indian life is another distinctive feature which is attractive to the American tourist in these latter days of the rapid passing of the redman.

The trails over which tourists now travel are the same hunting trails the Indians have followed up the mountain sides for thousands of years in their chase of big game.

Hence the reason for the famous buffalo or grass dance which still is religiously indulged in by the Blackfeet tribe. The Indians, who were so dependent upon the buffalo for food, raiment and shelter, held the grass dance as an appeal to the Great Spirit, thinking he would be pleased and send plenty of rain to make the grass grow luxuriously so the buffalo would come into "their country" to browse, and thus afford the redman opportunity to get what he needed to eat and wear.

The reservation of these Indians adjoins Glacier Park on the east, but the Indians spend much of their time roaming through "their paradise" that they may gratify their desire to meet with the tourists and have the white people enjoy their grotesque dances and wierd ceremonies in the tepee camps which they set up for that diversion.

Now they are back on the reservation on the border of the Switzerland of America, waiting for next summer to come, for they fully expect that all the people they met on their journey and invited to visit them will surely come to their mountain-land retreat and "make good medicine" with them.

No other national park in Uncle Sam's domain offers such opportunity of obtaining an intimate knowledge of the Indian and his home life. The highest honor the Piegans have to bestow upon the white people is their ceremony of adopting into their tribe those they take a liking to.

This same region of the Rockies also is much esteemed as fisherman's paradise. Inside the park proper is to be found some of the best trout fishing in the world. Expert dry fly exponents say so at least. The United States government has very wisely put a check upon the fisherman in these virgin waters, limiting the catch of each to twenty-five per day.

Most striking of all things about this wonderland upon the roof of the continent is that it seems to be one of the earth's notice-sources of longevity for man and wild beast alike. Many of the Piegans are very old men. Up there Wily Wimpuss, an Indian who enjoys the distinction of being one of the oldest living humans, was born. There, three years ago, White Calf and party of Indian hunters slew two of the oldest grizzlies ever taken in the Rocky Mountains, the skins of these animals being larger than any from the biggest buffalo this aged Indian has any recollection of, and he, still iving, now is 131 years of age according to the best computation that can be made.

The most recent evidence that the Fountain of Youth flows from the roof of the continent comes in the presentation to the outside world by a big game hunting party, of horns of one of the oldest elk of which there is any history. These horns have a spread of nearly five feet. An Indian who gives his age as 94 says that when he was a boy there was a gigantic elk the braves of his tribe used to seek, but which always eluded them until finally this mammoth animal came to be regarded reverently as a favorite of the Great Spirit sent forth to taunt the redmen. Maybe the two were the same, who can tell?

Scientists whose attention has been seriously drawn to the Fountain of Youth tales emanating from the

roof of the continent are inclined to think there is more in the idea than mere Indian superstition. They declare it must be the aerated glacier waters flowing from the heaven peaks that invigorates and prolongs the lives of man and beast. The reason they ascribe it to the water is because of the rejuvenating effect it has upon land which has been put under irrigation with it.

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A SYSTEMIC BOOST

It is safe to say that the average physician is called upon to prescribe a tonic more frequently than any one other form of medication, unless it be a cathartic. Patients who are patients solely because they are tired, "run down" and generally debilitated, are constant visitors at the physician's office. Such individuals need something that will boost them up to their normal point of resistance and then hold them there: in other words, not a mere temporary stimulation, with secondary depression, but a permanent help to the revitalization of the blood and a general reconstruction. Pepto-Mangan (Gude) is not only prompt in action as an encourager of appetite and better spirits, but is also distinctly efficient as a blood builder and systemic reconstituent. It is pleasant, non-irritant, free from constipating effect and does not stain the teeth. It is thus a general constitutional tonic of positive service in all conditions of general devitalization.

DR. BROUGHTON'S SANITARIUM

Dr. Broughton's Sanitarium at Rockford, Ill., is one of the few institutions in the country for the treatment of opium and other drug addictions, as well as for the care of alcoholic and nervous cases, which has made a national reputation and at the same time held the confidence of the medical profession. Write him for booklet.

THE BEEBE BIOLOGICAL LABORATORIES

Dr. Beebe reports a very gratifying increase of work in his laboratories, located in the Lowry Annex Building, St. Paul. This means that the laboratory aids to diagnosis are being used by physicians in all parts of the Northwest as never before, and that the public laboratory has a field of large usefulness.

MILWAUKEE SANITARIUM

Dr. Richard Dewey has secured the services of Dr. Herbert W. Powers, as senior assistant physician for his sanitarium. He was formerly connected with the Kenilworth Sanitarium and comes very highly recommended. Dr. Dewey will still continue to be in active charge, giving his personal attention and medical advice to all patients. Write for their booklet which will give full information.

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THE ETIOLOGY, DIAGNOSIS, AND TREATMENT OF ACUTE INFECTIONS OF THE PLEURA AND LUNGS*

By Louis A. Nippert, M. D.

MINNEAPOLIS

Punishment by the offended Deity, to be pacified by sacrifice of the fruits of the fields, of beasts or human beings, manifestations of the malign activities of omni-present Satan or, later, of his incarnate representatives, the witches and sorcerers, the evil influences of the fickle moon or vicious arrangements of the stars, noxious currents permeating the human system, miasms and emanations of telluric and atmospheric origin—all have in turn served as theories to explain the cause of diseases. Not until the latter part of the past century did the laboratories of experimental medicine, following the paths blazed by Pasteur, Klebs, and Koch, give us the scientific explanation and proofs that the majority of acute diseases are infectious, the result of the presence or activities of micro-organisms.

It seems presumptuous to attempt to cover the field of acute infections of the pleuræ and lungs in a short paper, the more so as the laws of the Academy require the presentation of the President's Address at the first meeting following his election. The writer will but endeavor to give the outlines, hoping that free discussion will prove of greater value and interest.

Pleuritis must be regarded as a secondary affection, the infecting agent, bacillus or coccus, entering either from the blood-stream, through lymph-vessels, or, most commonly, by continuity from adjoining organs. In the exudate pneumococci, staphylococci, or streptococci are the most commonly found offenders; occasionally gonococci, seldom tubercle bacilli. Bacilli or cocci entering the pleura from infected adjoining organs may come from—

1. Infections of the thoracic walls, muscles, ribs, or spine from abscesses, periostitis, or caries.

2. Infections of the lung parenchyma, tuberculosis, pneumonia, infarct, abscess, or gangrene.

3. Infections of adjacent thoracic or abdominal organs, the latter assisted by the great supply of lymph-spaces in the diaphragm with negative pressure in the thorax during inspiration, medistinal abscess, pericarditis, peritonitis, infections, and abscess of the liver, gall-bladder, stomach, appendix, kidney, or perinephritic connective tissue.

The blood-stream or lymphatic systems may carry to the pleura organisms or toxins in any infectious disease. Here, as elsewhere, trauma favors infection of the parts injured. In considering the causes of pleuritis we recognize four varieties:

1. Tubercular in about 50 per cent. Although tubercle bacilli are rarely found in the exudate, the fact that guinea-pigs injected with this apparently sterile fluid will frequently develop tuberculosis shows that results obtained by culture and the microscope are not conclusive.

2. Metapneumonic pleurisies with diplococci pneumoniæ in the effusion. Unless purulent, these infections are usually not severe, owing, probably, to the short life of the pneumococcus. 50 per cent of the empyematas are of this origin.

*President's address, delivered before the Minnesota Academy of Medicine, October, 1912.

3. As a part of a general rheumatic infection we may have a rheumatic pleuritis, in which no bacteria are found by our present methods. Usually they are preceded by an angina.

4. Septic pleurisy from streptococci or staphylococci or mixed infections as a part of septic diseases,—scarlet fever, erysipelas, diphtheria, puerperal, or other septic infections. The effusion is frequently purulent from the beginning, or a primarily serous fluid may become purulent.

The diagnosis of pleurisy is based on the history of localized pain, fever, and cough, and the presence of friction-sounds, which must be distinguished from muscular sound by use of the unaided ear and repeated examinations. (Not always possible.) Later, when an effusion is present, lack of expansion and prominence of the affected side, *absent vocal fremitus,* dullness, extending in larger effusions to the unaffected side forming the paravertebral triangle of Grocco (Rauchfuss), diminished respiratory sound, and egophony, displacement of the heart and liver, and encroachment of Traube's semilunar space, *fremitus* is characteristic. Increased tactile resistance on percussion is an illusion readily verified by Paessler's method of closing the ears while percussing. Change of the outlines of the effusion by change of position is another fallacy unless we have the patience to wait from one-half hour to several hours for this unimportant sign.

X-rays assist in showing the shadows of the fluid, which, by change of position of the plate from dorsal to ventral, are helpful in diagnosing thickened pleura from effusions. The fluoroscope also shows immobility and depression of the diaphragm on the affected side. Harmless, conclusive, often imperative, is the use of the exploring needle. It may be rendered almost painless by local anesthesia; or when, under exceptional circumstances, frequent punctures are necessary general anesthesia may be resorted to. Its use reveals at once the general character of the fluid, and enables further microscopical and bacteriological examination. Thorascopy, or inspection of the pleural surface through a large trocar inserted into the chest with an electric illuminator similar to a cystoscope, has been advised by Jacobeaus.

It has been found that a large percentage of lymphocytes in the exudate are indicative of tuberculosis as cause while polynuclear leucocytes are found in greater number in other infections. Tubercle bacilli, as mentioned, are not commonly found.

The treatment of pleuritis is essentially that of the primary disease and the prevention of damage by the effusion. Time does not permit discussion of the former.

Rest in bed, fresh air and dietetic regulation, attention to the action of the skin, kidneys, and bowels, and relief of pain by restriction of chest-movements, local application of heat or cold, and counterirritants, or, if necessary, the use of opiates, constitute the chief therapeutic measures. In rheumatic pleuritis large doses of sodium salicylate, 15 to 20 grains every four hours, have sometimes a decided influence on the severity of the attack. In dealing with the effusion we should be guided by the following rules:

1. Aspiration should be immediately performed if rapid accumulation threatens life from increasing dyspnea or cardiac disturbances.

2. If the fluid fills the greater part of one side of the thorax.

3. If smaller effusions show no tendency to spontaneous resorption. Large effusions of long standing, as well as hemorrhagic effusions, are best not interfered with; for in the former lack of expansion of the lung is likely to cause immediate return of the fluid and frequently hemorrhage from the vessels lining the pleura, while removal of the latter means increased hemorrhage.

Pus in the pleural cavity demands early evacuation and drainage. Many ingenious devices have been applied with the object of removing the pus by syphonage and preventing access of air to the pleura. The removal of a part of a rib allowing free drainage is, however, so simple and effective that these cumbersome apparatuses have joined the fracture box in the museum of the hospital.

The writer believes that the gradual removal of the purulent effusion by means of a trocar and syphonage a short time before the radical operation would be of material assistance in relieving the shock following the sudden evacuation of a large quantity of pus. While a low level is the point of election for drainage, adhesions of the pleuræ of the complemental space may mislead, and as a result the upper abdomen has been opened in the attempt to gain access to the pleural cavity.

Pneumonia.—In 1884 Fraenkel discovered the diplococcus pneumoniæ in the sputum. Later it was found in the upper air-passages, even in

healthy individuals. The recent discovery of pneumococci in the blood of pneumonia patients explains the widespread effects of this infection. While the organism may enter the blood-stream through infected tonsils or glands, probably the greater number of infections occur by extension from the upper respiratory passages, pharyngitis and sinusitis preceding the attack, which may be determined by a hyperemia of the lung from exposure to cold, by a pre-existing bronchitis, or by trauma.

The cause of post-operative pneumonia is ascribed by Gottstein to exposure to cold, bad air and to the dorsal position as he found it to occur as commonly after local as after general anesthesia. Laparotomies, especially of the lower segment of the abdomen, are peculiarly prone to be followed by pneumonia.

The fluoroscope has shown the tissue near the hilus to be the most common starting-point extending from there by preference to the lower lobes. The process of extension along the bronchi from the hilus and through infection of the lymph-passages, usually attacking an entire lobe and followed by resolution, is completed in two weeks. It is of great practical value to remember that extension beyond this period means an abnormal type of the disease, delayed resolution, abscess or gangrene or a complicating empyema, and, less frequently, endocarditis.

An exception to this limitation of duration is the so-called migratory (Wander) pneumonia which, similar to erysipelas, extends from one portion of the lung to another or causes foci of consolidation in different parts. They are rare in fibrinous pneumonia and frequent in influenza pneumonia. A greater virulency of the micro-organism or mixed infection may account for their severity and long duration, which is quite often three weeks.

1. Delayed resolution, chiefly in the alcoholic and enfeebled, is probably more likely to be a partial organization of the exudate into a vascular connective-tissue mass, but slightly adherent to the alveoli, which in course of time shrinks and disappears. The clinical symptoms of circumscribed pneumonia, dullness, weakened respiratory murmur, bronchophony, and fine râles may continue for months. If no absorption takes place, cirrhosis of the lung and bronchiectasis will develop.

2. Abscess of the lung may be diffuse from purulent disintegration of the hepatized areas, as result of coalescence of numerous minute abscesses, or from necrosis caused by thrombosis of arterioles or their obliteration by pressure from the exudate or from enfeebled circulation.

Besides the general physical signs, green sputa, in the absence of jaundice, and expectoration of large quantities of pus with elastic fibres and hematoidin, indicate the presence of an abscess. Percussion and *x*-ray photographs show the location.

Gangrene causes brown or gray expectoration of extremely fetid odor, combined with the general symptoms of abscess.

Empyema, the most common complication, has already been considered.

It may be added that occasionally we are surprised to find the effusion of a gangrenous (Jauchig) character with no previous indication in the sputum. In such cases a small gangrenous area located near the surface of the lung has been walled off from the rest of the lung-tissue by the exudate and has ruptured into the pleura.

Diagnosis.—Suddenness of attack, although frequently preceded for a few days by acute catarrh of the nasopharynx, chill, high temperature, pains in the side, lemon-yellow and rusty viscid sputa, herpes, with the physical signs of crepitation and consolidation, leave no doubt in cases of typical pneumonia. (Slight dullness over the side on which the patient lies must not be mistaken for consolidation.) When meningeal symptoms usher in the attack, the pulmonary origin of the disease may be entirely obscured for several days. Pain referred to the abdomen has frequently led to a diagnosis of appendicitis or cholecystitis. The occasional occurrence of jaundice as a part of a pneumonia intoxication renders the differential diagnosis from the latter disease more difficult. Laparotomy has been performed, mistaking pneumonia for hemorrhagic pancreatitis. Cutaneous hyperesthesia with rigidity of the muscles of the abdomen, seen occasionally in pneumonia, may simulate local peritonitis or even perforation in the course of typhoid.

The sharper outlines of the exudate corresponding to the anatomical division of the lungs, the increased vocal fremitus, and absence of displacement of adjacent organs, with high leucocyte count, differentiate pneumonic consolidation from pleuritic effusion. In protracted cases the use of the exploring needle will remove any doubt.

Treatment.—

"Der Geist der Medizin ist leicht zu fassen,
Ihr durchstudiert die gross und kleine Welt,
Um es am Ende gehen zu lassen,
Wie's Gott gefällt."

"The Spirit of medicine is caught with ease,
The great and little worlds you study through,
That things may then their course pursue,
As heaven may please."

This summary of Mephistofeles' explanation of medical science to the inquiring scholar of Faust is still true in many acute infections, but no longer in the treatment of pneumonia.

By disinfection of the germ-carriers, the sputa and probably the excreta, we can reduce the danger of infection; and, by attention to the habitat of non-virulent pneumococci, the nasopharyngeal spaces, during the prevalence of pneumonia, we may prevent a virulent activity of these micro-organisms.

When pneumonia prevails, especially if epidemic or endemic, we can instruct the public how to protect themselves by proper hygienic measures. Knowing that he who has suffered an attack is more vulnerable to this disease, we should advise him to avoid, if possible, the inclemency of the spring season by temporary removal to a warmer climate, and finally warn him, as well as those who, beyond the middle age, are suffering from infections of the upper air-passages, not to expose themselves at such season to increased danger of infection by visiting counties or cities notorious for their death-rate from pneumonia (Chicago, for instance).

It is true that our attempts to prevent or cure pneumonia by specific medication have so far shown no definite results.

Treatment with antipneumonococcic serum has practically been abandoned.

*Subcutaneous administration of polyvalent serum sounds scientific and is as rational as the shot-gun prescriptions of fifty years ago, which combined a multiplicity of drugs, one of which was certain to do good. How much harm was done by the others, no one knows.

Rosenow justly says: "We have no right to inject toxins of other bacteria than those producing the disease in question."

Enthusiastic acceptance of apparently good results, following the application of new laboratory methods, as a proof of their efficiency and therapeutic necessity, has found in vaccine therapy a virgin field—whether stony or fruit-bearing, the future must decide.

Fraenkel says: "The course and favorable termination of hardly any acute disease depends so much upon rational and judicious treatment as that of pneumonia."

Without going into details of well-known hygienic and dietetic measures, it may be stated that the addition of the open-air treatment is a decided step in advance. General elimination and avoidance of overloading the digestive tract are elementary maxims.

In the symptomatic treatment of pneumonia, the condition of the heart has always been considered of greatest importance; however, stimulation of the circulation by alcohol is much less ardently advocated than formerly. For instance, neither alcohol nor strychnia is given to pneumonia patients in Eichhorst's clinic. Strychnia as a routine heart stimulant is not harmless, but the possibility of chills and fever, resembling malaria, from its continued or excessive use should be remembered. Caffeine and camphor are powerful heart-stimulants, best used subcutaneously.

Embarrassment of respiration and of the right heart, as shown by cyanosis and labored breathing, are relieved by venesection or by use of oxygen.

A recent article in the *Journal of the A. M. A.* (October, 1912) draws attention to Adams' experiments showing that its use in higher percentages than 70 may cause an irritative consolidation of the lung without bacteria in the exudate.

With the invention of blood-pressure measuring apparatus, a new and important factor has been introduced in the treatment of pneumonia. Gibson of Edinburgh found that a fall of blood-pressure below the rate of the pulse indicated dangerous cardiac weakness and vasomotor paralysis. Vasomotor paralysis, caused by poisoning of the vasomotor centers, is one of the chief causes of death in pneumonia. To overcome this vasomotor paralysis, hydrotherapy, in the form of cold sponging applied to the limbs, hot saline enteroclysis, and hypodermoclysis are demanded.

Adrenalin increases blood-pressure; and ergot stimulates the heart and vasomotor centers and raises arterial tension. (Hare.) Caffeine has the same effect and should be used when there is a considerable fall of blood-pressure. If pain or

*The writer is gratified to note that an editorial in the Journal of the A. M. A., November, 1912, calls attention to this abuse of unknown agencies.

sleeplessness threaten to wear out the patient's power of resistance, morphine should be administered, but with great caution and careful watch over its effect on respiration.

In delayed resolution the patient should not be in bed too long, and he should, in combination with general tonics and abundant fresh air, practice methodical lung-gymnastics, taking deep inspirations, counting slowly during expiration, and assist the expansion of the lungs by bringing the accessory pectoral respiratory muscles into play.

Smaller *abscesses* frequently terminate favorably without interference. If continued three to four weeks, or in a case of gangrene, the question of operation in selected cases must be considered. By careful percussion and auscultation, aided by Roentgen photographs taken from different directions and change of distance of tubes, the location of the abscess can be determined. After establishing a window through the thoracic wall, Lenhartz, who had a large experience in pulmonary abscesses, sutured the parietal and visceral layers of the pleuræ, and, after adhesions had been formed, opened the cavity a few days later with the thermocautery.

The treatment of complicating empyema has been discussed previously.

When by ulceration into a blood-vessel, or into the thoracic duct the contents of a tuberculous focus gain access to the circulation, the result will be twofold: (1) a general toxemia with symptoms resembling typhoid; (2) local reactions from lodgment and activity of tubercle bacilli. The brain and lungs are the organs most commonly affected.

Miliary tuberculosis.—In obscure acute infections, especially of older individuals, the possibility of the *pulmonary form of miliary tuberculosis* should not be lost sight of. The history of a tuberculous focus, often dating back ten to twenty years, an irregular fever with profuse perspiration, dry cough with *great increase of respirations*, combined with cyanosis and rapid heart, should arouse suspicion of a general tuberculous infection.

Physical signs may be almost entirely lacking, or hyperresonance, from alveolar distension, and small areas of consolidation, with fine crepitant or moist râles, may simulate a low form of bronchopneumonia, often a part of typhoid infection from which it can be diagnosed by taking the absence of the cardinal symptoms of the latter in consideration.

The treatment is palliative, as a fatal issue in four to six weeks is unavoidable.

Acute tuberculous pneumonia.—When we consider that the majority of individuals harbor a tuberculous focus, we cannot but wonder that the acute pneumonic form of pulmonary tuberculosis is not met with more frequently. An intercurrent infection, especially influenza, trauma, or hemoptysis may carry active bacilli into the bronchioles, causing a diffuse hepatization of a part, a lobe, or of an entire lung.

The physical signs are those of a fibrinous pneumonia, but the general symptoms are much less severe, often with a temperature of 104°. The patient comes to the office; there is less dyspnea, less pain, or expiratory grunt, pallor instead of cyanosis. The sputa may show some rusty discoloration, and tubercle bacilli are very scarce. On section of the hepatized lung a gelatinous exudate without granular surface is distinctive. The psychical characteristic is one of hopeful optimism without apprehensive fear. Neither crisis nor lysis occurs.

It is this form of pneumonia which is most apt to lead to diagnosis of intra-abdominal affection, mentioned in the diagnosis of pneumonia.

While the majority of patients succumb in the course of a few months, remarkable improvement, with absorption of the greater part of the exudate, is not infrequent, and should stimulate us to make every effort to prolong life.

The same treatment as that of other forms of pulmonary tuberculosis is indicated.

While it is proven that the action of the microorganisms or their toxins is the primary cause of acute infectious pulmonary diseases, the avenues of access to the tissues of the lungs, whether by way of the bronchi, blood-stream, or lymph-vessels, are still *sub judice*.

It is for experimental medicine to find the way and means, not to treat, but, what is of prime importance, to prevent, these preventable infections.

RECTAL SECTION FOR PELVIC ABSCESS IN MEN*

By Archibald MacLaren, M. D.

ST. PAUL

In introducing this subject to you I wish to describe a case which came to my service at the University Hospital.

A. F., a boy, twelve years old, who had his first attack of abdominal pain three days before he was brought to the hospital. At that time he was suddenly seized with intense abdominal colic in the right lower abdomen. The pain was severe all night, and continued until he had a hard chill, on the evening of the second day. He was delirious all that night. He was brought in on the train from his home in the western part of the state, reaching the hospital at 8 A. M., June 27, last. When he reached the hospital his temperature was 98.8°, pulse, 136; abdomen, rigid. He complained of constant pain and tenderness in the right lower abdomen; was drowsy and constipated.

A diagnosis of perforative appendicitis was made, and he was immediately operated upon. At the operation a commencing general septic peritonitis with much pus in the abdomen was found. An enlarged gangrenous perforated appendix was removed; two rubber drainage-tubes were introduced, one extending into the bottom of the pelvis, and the other to the region of the base of the appendix. That afternoon his temperature went up to 102°, but soon subsided, ranging between 100° and 101° until the tenth day, when his temperature reached 103°; his pulse in the meantime ranged between 110 and 135.

I saw this boy first on the tenth day following his operation. He looked very sick, with a pinched, drawn face, and a rigid, very much distended, tender abdomen. His operative wound was partially open and discharging considerable pus; the drainage-tubes had both been removed the day before. He was moaning and crying continuously, and the nurse said that he had complained bitterly of abdominal pain ever since his operation—that he cried so much at night that he had disturbed the entire floor. Upon exposing his anus to view, it was seen to be widely open and gaping, showing the bulging anterior wall of the rectum, and the peritoneal cul-de-sac was distended to its utmost by a collection of fluid which filled the pelvis. This was immediately opened by a sharp-pointed pair of scissors, using them as a dilator instead of cutting. At least a quart of, at first, serous pus, and, later, thick and very offensive colon pus was evacuated, and a winged rubber tube was put in. That same afternoon the boy was crying for food and has steadily improved until he is now out of danger and ready to go home.

In passing I would say that this boy was more than ordinarily fortunate in being able to carry this large abscess so long without its backfiring, or rupturing back into the free peritoneal cavity.

Rectal section or rectal puncture for the drainage of intraperitoneal accumulation of pus has proven such a life-saving measure in our hands that it has seemed well to again call the attention of the profession to the classes of cases in which it should be used, particularly when we found that there was still so much prejudice among some of our best surgeons against this very simple procedure.

This is such a little operation that there is no danger to life at all. While there are such immediate and brilliant results following its use in the cases which used to die on our hands, we believe it should be more often resorted to. The principal reason for this prejudice was the fact that in our earliest report on this subject we described how in our third operative case we had opened the base of the bladder by mistake. In this case, a few days following an operation for an acute perforative appendicitis, the man, who had been doing well, suddenly started to do badly. By an inexcusable mistake the man's bladder had not been emptied, and consequently was opened. This mistake would never have occurred, if this simple precaution had been observed. As was related in the early report of this case, now some four years ago, the finger was passed into the bladder to make sure of our location, and was withdrawn, and the abscess in the cul-de-sac was immediately opened and drained. This man never had any inflammation of his bladder. He passed bloody urine through his urethra that same night and normally thereafter. He quickly recovered from his operation and is still living and well. We recounted this experience, not to show that the bladder can be safely opened, but to point a warning. This was pioneer work as far as we were concerned.

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

Other men, such as Stillman of California, had drained many cases through the rectum, but they were not in print, and no description of the operative technic was to be had. And this was our third attempt. We were originally led to the conclusion that rectal section was a reasonable surgical procedure by our previous experience in vaginal section in general abdominal cases. In our early abdominal work we soon discovered that, as a rule, when a case started to do badly a secondary abdominal section was usually immediately followed by death, while, if these cases were left alone, many were apt to do better, some going on to a pelvic abscess, which could be later safely opened through the vagina; while, on the other hand, many apparently hopeless cases after laparotomy could be saved by an early secondary vaginal drainage. For this reason many years ago we made a rule that we would never let a woman die from general peritonitis without making a vaginal section, and lately we have added to this rule, that, in lower adbominal or in pelvic cases, we would never let a man die without first opening his cul-de-sac through his rectum, and by so doing we have materially improved our mortality records.

The rectum is nature's avenue of outlet in neglected pelvic abscess, in both men and women, as pointed out by Richardson, who says: "Years ago, when operations were not so frequently done as now, many cases cured themselves by discharging into the rectum." There is no reason in our judgment why we should not aid nature, and conserve the vital powers of these patients by hastening this natural process. Then, again, when we interfere and open these abscesses above, put in drainage, and take off pressure, the normal rectal discharge is delayed, and nature needs more help.

In our last report on this class of cases we took the position that, if we were always to follow the advice of Van Buren Knott, the necessity for rectal section would be much lessened. Knott's position was that in appendiceal abscess cases we should always remove the appendix and immediately make a secondary stab-opening just above the pubes, and then pass a large-sized rubber tube to the bottom of the recto-vesical peritoneal pouch. We have, during the past two years, usually followed Knott's plan, and we believe that the necessity for rectal drainage has been lessened; but several cases, during the past two years, have proven that, even following this rule, rectal section will occasionally have to be done to prevent complications and to effect a prompt recovery.

There is another limited class of cases where rectal section is made as a preliminary or the first step in the treatment of a bad case of pelvic abscess. These are the cases, especially in children, who reach the surgeon exhausted and very septic with a large abscess filling the pelvis. If we open and drain through the rectum, some of these cases will immediately recover; but, as Lincoln Davis of Massachusetts General Hospital says: "These patients must be carefully watched, and if the improvement in symptoms is not immediate and continuous they must be opened from above. The method is ideal only for large pelvic abscesses when the appendix is itself pelvic in position."

The position that some of our surgical friends have taken regarding this class of cases is that it is a bacteriological question: that some types of pus-infection will perforate into the rectum if left to themselves, and that others will die, and that therefore we should not interfere. We cannot see that this point is well taken. Why should we ever open any abscess anywhere?

Our experience is that if they are opened into the rectum and drained early they do not die, but almost without exception get well. If they are neglected, these cases are the ones that later develop subdiaphragmatic and other distant abscesses and die from amyloid changes of the liver and kidneys.

Our conclusions are, that the success or failure in dealing with appendiceal abscess cases depends upon our vigilance rather than upon the methods of operation or drainage. These cases are not to be dismissed from our minds, but should be carefully watched. The only cases that we have lost we have considered cured at some time in their progress. The only case lost in two years was one in which we did not discover that he had a large pelvic abscess until the twelfth day after the operation. This was opened on the twelfth day, but too late. The boy died that same night.

DISCUSSION

Dr. Arthur C. Strachauer (Minneapolis): The procedure that Dr. MacLaren advocates is very difficult at first to accept. I think that it is only natural for one at first thought to feel a great prejudice and repugnance to the opening of the peritoneal cavity through so foul and contaminated a route as the rectum. Rectal section will be rarely necessary in my opinion if proper drainage be established at the primary operation for a ruptured appendix, that is, if a large rubber drainage-tube be placed at the very bottom of the pelvis and a second one at the region of the base of the appendix.

If, however, following operation, or in an old neglected case without operation, there has developed a large accumulation of pus in the cul-de-sac, then rectal section is a life-saving procedure. Left to itself, such an abscess may rupture back into the peritoneal cavity, "back fire" with a resultant peritonitis or later formation of a subdiaphragmatic abscess. When, as not infrequently occurs, the mass ruptures into the bowel with thorough drainage, a spontaneous cure is effected; hence it is seen that Dr. MacLaren's procedure is an anticipation and copying of nature's method and route to a successful cure.

I was much interested in a recent conversation with a country practitioner on this subject. The doctor was called to see a child out in a faraway rural district. The patient had a neglected ruptured appendix and was in extremis, a large abscess having formed in the cul-de-sac. Without removing the child from the farmhouse, the doctor simply punctured this abscess through the rectum, and the child recovered. There is a valuable lesson to be gained from this experience and Dr. MacLaren's cases, and we must not stand by and permit such patients to die without doing something—not alone something—but the right thing for them.

It was my good fortune to see the final successful outcome in the University Hospital case which Dr. MacLaren reports in his paper. I performed the primary operation, easily removing a foul, ruptured gangrenous appendix, and drained the cavity through two large rubber tubes the size of my index finger, placing one in the pelvis at the bottom of the cul-de-sac, and the second at the region of the base of the appendix. The patient was profoundly septic and while in an active delirium pulled his dressings off and removed the tubes. This removal of the tubes I believe to be the explanation of the later accumulation in the pelvis. The clinical findings corresponded to Dr. MacLaren's description. The sphincter was completely relaxed, paralyzed, and through a partially everted anus a quantity of mucus was being passed. Rectal examination revealed the large bulging forward of the pus. Within five minutes after the evacuation of the pus through the rectum the sphincter had contracted and regained its tone. I am confident that the patient would have been lost except for the timely drainage of the pus, unless nature had spontaneously evacuated it likewise, and I am extremely grateful to Dr. MacLaren for a valuable lesson.

Dr. A. W. Abbott (Minneapolis): Dr. MacLaren did not touch upon one point, and that is as to whether there will likely be a permanent fistula following. I heard Dr. Emmett more than forty years ago say that when a fistula occurred in the bladder from pressure necrosis it would not heal very well, but that when he made one himself he could hardly keep it open, and I believe the same principle applies here. These punctures made in the rectum heal readily; the fecal matter does not tend to get into the abscess afterwards as it does in those cases where the condition is left to itself and rupture takes place spontaneously.

Dr. MacLaren (closing): First, in answer to the question of Dr. Abbott: Our experience is that a permanent fistula does not follow in these cases, and I am speaking now from an experience in twenty-three personal operative cases. Two of these cases died. The twenty-one who got well have no fistula and are absolutely without any trouble with the bowel at all.

In St. Joseph's Hospital, at this time, I have a small boy who came to the hospital after this paper was written, who was operated upon at the end of forty-eight hours for acute gangrenous perforative appendicitis. When possible, we have usually followed Oschner's instruction to let these cases alone up to the seventh day, when the abscess becomes more or less sterile, and not open these cases early if we can avoid it. But we do not let these cases go in children. They are the urgent cases. Nearly all of our rectal sections in children belong to this class of cases, children who are between six and seven years of age, and without exception have been given a cathartic. The family physician may not have given it, but if he has not some of the neighbors have.

This small boy, nine years of age, of whom I have been speaking, came in with a perforated gangrenous appendicitis at the end of forty-eight hours. He was operated upon, and the gangrenous appendix removed. Two drains were inserted, one in the cul-de-sac and the other in the loin. The third day after the operation the boy was so desperately ill that I told the father that I was afraid the boy was going to die; that the only hope for the child was the possibility of reaching the pus from below, because I felt certain that if we opened him from above that we would kill him. With deep dissection through the cul-de-sac and introducing a pair of dressing forceps, at great depth, we got pus, put a drainage tube in, and the boy proceeded to get well. On the fifth or sixth day, the rectal drain having been taken out with the catheter drain still in the upper abdominal wound, when I put my finger into the rectum I found that the tip of the catheter drain, which was put in through a stab in the upper abdominal wall, ran into the rectum, so that the catheter was upon the point of my finger. That catheter was withdrawn, the fistula promptly closed, and the boy is to-day well and ready to go home.

In regard to the position taken by Dr. Strachauer, that this thing is rare: I do not know. I have made post-mortem examination on patients who have died of appendiceal abscesses, and I have always found these pus accumulations of which we have been speaking. In the last two years some thirty patients so treated that we know of have recovered, with the two exceptions mentioned, and these two patients would not have died if I had opened the large accumulations through the rectum a little sooner.

Dr. Strachauer: From what Dr. MacLaren has just said I fear I must have made a misstatement. The point I wanted to make is this: If, after opening the abdomen for a ruptured gangrenous appendix, a drainage tube as large as my index finger is introduced to the very bottom of the cul-de-sac and another to the region at the base of the appendix, following such practice rectal section will be rare. Such drainage prevents the accumulation of pus, but if complete drainage is not instituted, and the tubes are not placed at the very bottom of the pelvis, accumulations in the cul-de-sac, requiring section, will more commonly obtain.

Dr. MacLaren: In the last two years I have had to open three or four cases through the rectum after instituting drainage in accordance with the plan mentioned by Dr. Strachauer.

NOTES ON THE TREATMENT OF SEPTIC ENDOCARDITIS*

By Soren P. Rees, M. D.
MINNEAPOLIS

Much has been written during the last five years concerning septic, or malignant, endocarditis, dealing chiefly with its cause, symptoms, diagnosis, and course. Among these writers, Stumm's thesis† gives a very clear and complete description of the disease. All investigators agree that it is a general blood-infection, secondary to some local focus and occurring most frequently in young adults, that it runs a somewhat chronic course, involves the endocardium, usually because of some former injury, and terminates fatally in more than 80 per cent of all cases.

As to the treatment, little is given. All the recent text-books refer briefly and in general terms to tonics, but continue to discuss the salicylates, quinine, and heart-stimulants. Whatever the clinical picture—the so-called typhoid, pyemic cardiac, or cerebral form—the measures adopted must aim to combat a general blood-infection.

A blood culture should be the *first*, and not the last, step in the treatment. It is not only the best means of making an early diagnosis and a probable prognosis, but will assist greatly in the treatment by suggesting appropriate measures and especially by plainly excluding drugs that can only consume the patient's time and strength. This simple and safe procedure demands a syringe (glass), sterilized in an autoclave, in order that spores, as well as bacteria, may be killed and that the instrument may be dry and thereby greatly diminish the chance for accidental contamination. From 10 to 20 c.c. of blood should be drawn and immediately distributed in not less than two culture-tubes containing each from 100 to 150 c.c. sterile broth. This large amount of blood well diluted in broth favors a growth in all infected cases. As drawn blood quickly develops increased bactericidal powers, the culture-tubes should be prepared at once. The specimen must be conveyed in person to the laboratory to avoid contamination, which, whether in transit or by faulty technic at the bedside, renders the work worthless. Twenty-four hours is usually enough time in which to obtain a diagnostic growth, and a few days will usually enable the laboratory to develop an autogenous vaccine for treatment.

Complete rest is the second step in the treatment. This must be absolute. The magazine articles and text-books give no adequate indication of how absolute this rest ought to be. If certain parts of the endocardium become infected because of some former injury that leaves a "locus minoris resistentiæ" for the bacteria to invade on account of strain and irritation, and if complete rest in the recumbent position reduces the strain on the heart by one-third and one-half, respectively, from what it is in the sitting and upright positions, and if heart stimulants are contra-indicated, and we especially desire to keep at rest the heart-leaflets, it becomes evident that such a patient should not be allowed to raise his head or speak or make any movement that good nursing can prevent.

Removal of the primary infection is the next step in the treatment. This focus can usually be found from the history and by physical examination. I would not now hesitate to remove at once such infection, whether found in the tonsils, a tooth, head sinus, pelvis, or some other part of the body. We are familiar with the rapidity with which the general symptoms of a spreading local infection subside as soon as the primary abscess is opened or drained. There is every reason to believe that in very many instances of these chronic or subacute cases of septic endocarditis, the primary infection so continuously feeds the bacteria into the blood-stream as to more than offset the bactericidal powers of the blood. A case of rheumatic endocarditis that I attended for Dr. J. W. Bell last winter while he was absent from the city, will serve to illustrate.

Miss H., aged 11, while in perfect health, noticed a sore throat on December 25th, last. Dr. Bell was at once called and prescribed for a mild follicular tonsillitis, which disappeared in a couple of days. She was given good care in one of our city's best homes during the holiday recess, and, as she had perfectly recovered, she entered school at the end of a two weeks' vacation. A few mornings later she awoke with a slight pain and stiffness in one finger, a little tenderness in the wrist, and a feeling of discomfort over the precordia. Dr. Bell on his arrival found a pronounced mitral murmur. In spite of complete rest, elimination, wise feeding, and suitable medication, the tongue remained coated, the temperature elevated, and the endocarditis unabated for many weeks. It

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

†T. W. Stumm: Septic Endocarditis, St. Paul Medical Journal, June, 1911.

was not until her tonsils were enucleated that improvement was marked and her general condition improved rapidly.

This case is but one out of many that have convinced us that the tonsil is the port of entry for nearly all heart-infections. The importance of early removing the primary focus that feeds the septicemia becomes apparent if we believe Rosenow's conclusions*: "A painstaking study of the method by which the bacteria in these cases seem to protect themselves against the anti-bodies of the host may be briefly summarized:—

1. By cultivation in the serum and blood of the patient, these organisms acquired a resistance to opsonification and phagocytosis, instead of an increased susceptibility.

2. They usually grew more rapidly in the patient's serum than in normal blood.

3. While leucocytic normal blood had a marked bacteriolytic effect, due to phagocytosis and intraleucocytic destruction, the patient's blood containing the same number of leucocytes, the serum having a high opsonic index, often had no bacteriolytic action. This seemed due not wholly to the lack of phagocytosis, but to the inability of the leucocytes to destroy the bacteria after they had taken them up."

In other words, the longer the bacteria develop in the host, the more resisting do they become by virtue of their environment to the natural destructive powers of that host.

The tonic or supportive treatment should combine all that we have learned about the value of sunshine, pure air, and selected food (juice of rare steak, raw eggs, milk, suitable vegetables) in tuberculosis; blood tonics (nux vomica, gentian, quinine, arsenic, and iron) in anemia; hot water between meals and colon-flushing in auto-intoxications; and light massage and good nursing in malnutrition. Not one but all of these measures in wise combination must be employed. It seems of special importance that the food should not only be highly nutritious, and quickly and completely digested, but should be of small bulk, so that no pressure against the free heart-action may be felt. Special symptoms and complications must, of course, be dealt with as they occur.

The question of specific medication by means of an autogenous vaccine (a sterilized, standardized emulsion of the infecting organism) is still on trial. The principle seems right and some reported cases* undoubtedly testify to its value. Rosenow, who has perhaps in this country done the most work in this field, concludes, in the article already referred to, that "the therapeutic injection of dead bacteria in endocarditis has very little influence on the course of the disease until late in the course, when there is temporary improvement following injections."

The same author, in a more recent article** concludes that in acute processes autogenous vaccine is beneficial, but doubtful in the more chronic cases. Small doses (10,000,000 to 100,000,000) are better than larger doses.

Other experimenters, like W. Gilman Thompson†, report three cases cured by homologous vaccine; in two fatal cases the effect upon the septic phenomena was striking and temporarily beneficial; and in two fatal cases, it was slight but clearly demonstrable.

The following case is appended because it illustrates some of the features met with in a typical chronic case. Under the old line of treatment, its termination was fatal.

Mr. X., male, aged 27, married, consulted me on February 19, 1912, because he was feeling very weak. He had an unproductive cough and some soreness in his right knee. He gave a good family history, and a personal history that was negative except for a tendency to biliousness since a child. A few years ago on being examined for life insurance, he had been told that one heart valve was slightly defective, but his risk was accepted. Since the beginning of the previous November he had had frequent attacks of sore throat and had been losing in strength, but had continued his work as traveling auditor in Michigan all winter and did not think anything was seriously wrong. The last two weeks he had had chills. Examination revealed a very pale young man in spare flesh, whose temperature was 100° (4 p. m.); pulse, 84; and respirations, normal. The lungs were negative. The heart was enlarged and showed a pronounced aortic regurgitation with a rough first sound at the apex. Tonsils much enlarged, the right knee not swollen or changed in appearance, but painful on movement. Urine was negative. Hemaglobin, 75 per cent; leucocytes, 13,600, as follows: poli-

*E. C. Rosenow: Phagocytic Immunity and the Therapeutic Injection of Dead Bacteria in Endocarditis. Jour. of the A. M. A., 1908, p. 1571.

*1. Wright: Studies on Immunity.
2. Conder: Practitioner, August, 1909.
3. Barr and Bell: Lancet, London, February 23, 1907, p. 499.

**E. C. Rosenow: Autogenous Vaccine Therapy in Endocarditis. Jour. of the A. M. A., 1910, p. 1719.

†W. Gilman Thompson: Clinical experiments with homologous vaccines in the treatment of septic endocarditis and pyemia. Am. J. Med. Sci., 1909, p. 169.

morphonuclears, 82.5 per cent; lymphocytes, 10 per cent; large mononuclears, 6.5 per cent; eosinophiles, 0; and basophiles, 1 per cent.

A diagnosis of chronic septic endocarditis was made, and he was at once put to bed for absolute rest and placed on supportive treatment. For four weeks the disease continued to run a mild course, the temperature varying between 99° and 100°+, with a slow regular pulse. The tongue, however, remained coated and the digestion much upset. He was very irritable and nervous and complained of severe pains in the joints and muscles without any apparent anatomic cause.

In spite of the unfavorable symptoms, because the temperature and pulse were so encouraging, and because he was now under ideal conditions for rest and upbuilding, it was confidently believed that "the very next day" would show a decisive improvement by indicating that the natural resisting forces of the body had overcome the invading infection, which was evidently not very severe or acute. But we reckoned wrong. In this respect we can bear out Rosenow's conclusions. Without any warning or cause the temperature became elevated, the pulse rapid, chills recurred, and, although the struggle lasted six weeks longer, characterized by great restlessness, embolic plugs, and delirium, death came suddenly through acute dilatation of the left heart. There was no time when the symptoms abated or seemed within control. The blood-culture taken after the onset of the severe symptoms gave a pure culture of streptococci, and Dr. Ulrich prepared from these a vaccine which, on advice of counsel, was not used, because of the severity of the intoxication at that stage. In a similar case, I should now favor removing the tonsils at the very beginning of treatment, and, besides all the supportive measures employed, should institute vaccine therapy in small repeated doses as soon as a blood-culture could be made.

DISCUSSION

Dr. S. Marx White (Minneapolis): I am extremely sorry Dr. Ulrich is not here to present the relation of vaccine therapy to this condition as I had hoped we could have some discussion about this matter, but it seems we are not going to be able to have it today.

The question to me is one of extraordinary interest. In the first place, the efficiency of bacterins and vaccines, and the injection of dead bacilli, in a great many cases of infection, is established beyond doubt. But we are learning that the use of bacterial vaccines, like the use of every other remedy with which we are familiar, has its limitations of usefulness, and these limitations we must learn more about before we can become convinced that our use of these vaccines may not be harmful. I can conceive of very few instances in which the inoculation of dead bacteria would be harmful, but it could well be so in the case of severe endocarditis. I am sorry that I cannot give you the specific references, but I did not have the opportunity to look them up recently enough to have them in mind. A good deal of work has been done, particularly in the use of antitoxins for streptococci and pneumococci, showing that where there has been a very large infection and a large amount of the infecting organisms present, with invasion of the blood-stream, the effect is harmful rather than otherwise. If there is any condition in which the effect of bacterial inoculation might be harmful, it is in just the condition we are discussing, for the reason that these organisms are not limited to the tissues, but have gained access to the circulating blood. When these organisms then, are killed, the endotoxins are liberated directly and in large amount, into the circulating blood resulting in an overwhelming toxemia. We may liken these endocardial infections to the terminal infections, and I sometimes find it helpful to think of them in that way. We have not a local infection any longer. It has passed from the local to a systemic invasion, and the reason we have bacterial localization on the valves of the endocardium is that the bacteria have invaded the blood-stream; that thrombosis has occurred; and the leucocytes and other protecting cells of the body are making an attempt to limit the infection; the blood-stream is already invaded, and localization, with thrombosis, has occurred. Doynton and Payne, in the last number of the *Quarterly Journal of Medicine*, which came to my desk three or four days ago, have a beautiful and classic article on endocarditis, in which they bring out the point that in endocarditis we are not dealing with a condition which can be classified into vegetative and ulcerative endocarditis, but that probably the only suitable term is *endocarditis*, leaving off the term *septic*, because they are all septic, whether they are rheumatic or what not. Endocarditis in any form is septic. They bring out the fact also, or rather they make the statement, although they do not give the cases to support it, that, in their opinion, the use of vaccines or bacterins in endocarditis is of extremely doubtful value. That is the last word I have been able to find on the subject, and it comes from an authoritative source.

These are some considerations which I have presented based on cases of endocarditis which I have seen and have treated with bacterial vaccines or autogenous vaccines.

I am convinced that we do not as yet receive the slightest benefit from this method of treatment. There are cases of endocarditis that will get well. Cases of acute endocarditis get well repeatedly, and there are any number of cases of chronic endocarditis, more properly called *fibrosis of the valves*, where the effects of the disease remain, but it is in the chronic septic endocarditic cases, to use one of the older terms used by Osler, that these measures fail. The infection is a terminal one. The invasion has reached a point where, even if the protective forces are active, there is breaking down. Destruction and embolism occur, and we are as yet helpless when that stage has been reached.

A point Dr. Rees has brought out that seems of great importance is with relation to prophylaxis, and I believe it is there that as a profession we are at fault. If

it is sepsis, and if rheumatism is a septic condition, as we believe, and if there is a primary focus, which I believe can be demonstrated in the majority of instances, our duty is to find the primary focus and eliminate it. Our duty is not to be too slow with relation to the removal of septic tonsils. A patient ought not to have recurrent tonsillitis, and a patient with infected sinuses should be treated just exactly as we treat a case of osteomyelitis that is likely to become a case of pyemia, because conditions are potentially just as threatening as in the latter, which so often results in pyemia and endocardial infection. We must be more on our guard to recognize early and eliminate promptly the source of infection. Dr. Rees has stated my position when he says that he would not hesitate, in a case of acute endocarditis, to have the tonsils removed if he believed they were the primary source of infection. I have seen that done. I have advised it. Three or four days after the removal of the tonsils, the patient seems to be worse, but after that he improves rapidly and goes on to complete recovery, so far as the acute inflammation is concerned, leaving behind only the damage that had occurred up to that time.

Dr. John A. Witherspoon (Nashville, Tennessee): I have been very much interested in the paper and in the discussion. I am fully convinced that the gentlemen are absolutely correct. In the first place, practically all of these cases have some focal lesion. The majority of cases I have been studying recently at various times, the arthritides or cardiovascular changes, have been found to have septic poison, streptococci usually, and very frequently in the tonsil. It is perfectly remarkable how many cases will be found in which the tonsil looks to be very simple. Recently, in a bad case of arthritis, the tonsil looked as though it was not there. Finally, a little stub of adherent fauces was found. I advised immediate operation, and above this little stump of tonsil there was at least a half a teaspoonful of pus that came out when the surgeon operated. The whole case cleared up beautifully following that operation.

I was impressed with the statement made by the last speaker as to the importance of looking immediately for the focal lesion and removing it. I am not prepared to say that the autogenous vaccines do not do any good I believe the speaker is exactly right in emphasizing the importance of removing the focal lesion at once. It matters not what will be the danger, you are not going to improve the general infection as long as there exists some focal point. It would be folly to use bacterins as long as there is a focal lesion feeding the blood with this infection all the time. In cases with an acute attack, if you remove the focal point of infection at once, and administer autogenous vaccines, I have seen good results in those cases. In the chronic and subacute cases I fancy we have gotten better results from the bacterins. I am thoroughly convinced that the vast majority of general infections we have been treating as rheumatisms and endocardial trouble have been due to focal lesions which we have simply overlooked in the past. I will give you one illustration. Last June a man came to me suffering from angina pectoris; at least, he had pain which simulated angina pectoris, and was suffering greatly. On examination I found the man's urine full of pus. On examination of the right kidney we found a very large kidney fluctuating, and the *x*-ray showed he had a stone in that kidney. The blood-pressure of this man was about 185. We hesitated to give him an anesthetic because he was suffering so extremely with anginal pains, but finally, believing the man would die unless he was operated upon, I had a surgeon open and drain that kidney, from which he removed five stones. I never saw such rapid improvement take place in a case in my life. The precordial pains passed off; the blood-pressure dropped to 140; and today he is a practically well man. I am just as sure that the vascular suffering came from this point of local focal infection, and although I can make out a lesion of the heart, it is not definite; the left ventricle was slightly hypertrophied; there was a sharp accentuation of the second sound of the heart, but there were no murmurs; yet the removal of this pus and stones brought about remarkable improvement, and the man has resumed his occupation, which is that of a traveling man, and is free from all pain unless he indulges in some violent exercise.

Dr. H. L. Ulrich (Minneapolis): There are three points to consider in this group of cases from a therapeutic standpoint. You have a general infection,—a local infection of an important organ,—and your infection is due usually to a group of organisms which are peculiar, in that they readily adapt themselves to the host by a process of immunity against his blood-serum. There is no type of therapeutic procedure left to battle except that of vaccine therapy. I am convinced of this by experience, observation, and reading. The poor results up to date lie in several causes. Clinicians have been prone to call in vaccines at a late hour. The men who make vaccines have not taken into consideration the value of media on which bacteria grow, and that every culture varies in its antigenic values. We are here in the field of the most intricate immunizing reactions. In growing the cultures a medium ought to be chosen which is as near to blood-serum as possible, and that, of course, is human-blood serum agar. Again, the culture may have to be passed through an animal or two to get rid of its immunizing mechanism against its former host. Our practical results, then, lie in quick action and intelligent manufacture of vaccines.

There is one other item which I have not tried nor seen suggested along this line of thought, which applies to the cases of long standing. That is, the use of fresh human-blood serum intravenously, or, if necessary, transfusion can be tried. It is quite possible that with an influx of fresh healthy blood the tide of bacterial toxins and growth can be stopped sufficiently long for the host to rise above his low level of immunity and thus actively throw off the infection.

Dr. Thomas B. Hartzell (Minneapolis): I have been very much interested in Dr. Rees' paper, and I want to leave one thought with you in regard to it, namely, that these infections frequently arise from deep pockets around the teeth. During a recent attack of typhoid fever in which I spent two months in the hospital, I had direct infection from my right tonsil, which arose from an infection around a loose molar, the so-called wisdom tooth. This wisdom tooth became sore, and I suffered intensely from infection located around that third molar. I sent for my dentist, he came down, and endeavored to stamp out the infection by injecting iodine into the deep pockets, but before he limited the spread of that infection my tonsils were so swollen that I could not swallow. In my own experience the infec-

tion arose from a tooth. Pathologic conditions of the teeth and infections of the mouth, therefore, have an important bearing on cases of endocarditis. It is a point to be remembered because physicians do not pay as close attention to the infections that occur in and around the teeth as they would if they knew that many of these infections are absolutely without external evidence, and you have to squeeze the gums or insert a probe to bring out the fact that there is disintegration of tissue going on. I have known of three cases of septic endocarditis in which the post-mortem findings showed no initial focus except about the teeth.

THE TECHNIC OF ANESTHESIA*

By George E. Putney, M. D.

Paynesville, Minn.

The presentation of this paper is warranted, I hope, by my experience as an anesthetist.

I have always preferred ether, not because I have discredited other agents, but for the reason that ether has never failed me, so why should I be hampered by gasometers and other cumbersome paraphernalia? Chloroform has its merits, and I use it when ether is contra-indicated, which, however, is seldom.

Successful anesthesia has its foundation in preliminaries. The first of these is to get acquainted with your patient, clinically and socially; win his confidence, magnify your importance and interest in his operation, and show him the possibilities of his co-operation. If he be a somnambulist, with a limited degree of voluntary attention, you may absorb that attention so that when he goes to the operating-table he may find it easier to do your bidding than to resist your suggestions. In fact, the patient wants relief and will try to co-operate with you; but you must not try to deceive him. The voluntary mind of reasoners is hard to impress, except along logical lines; so don't tell your patient that he will like the smell of ether and that he will go to sleep without a struggle. Rather, tell him he may not at first like the fumes of the anesthetic, and that he may be uncomfortable, but in a few moments he will not mind his discomforts because they will soon give way to sleep—sweet sleep. The repeated suggestion of desired and approaching sleep, with encouragement, generally carries the patient into unconsciousness with but little disturbance. This is not hypnotism: it is but an outline of suggestive procedure.

If there be ankyloses or anatomical anomalies they should be detected before the patient is prepared for the operation. For instance, deviated radials or temporal arteries may embarrass the anesthetist if not detected before the operation. There may be, though rarely, dilated pupils from alarm or other causes. Don't overlook this condition.

When thoroughly in touch with your patient's physical and mental condition, false teeth and clothing removed, and bladder and bowels emptied, conduct or accompany him to the table and secure him without the aid of any other person. The fewer clothes a subject wears during an ether anesthesia the better it will be for all concerned, especially if suggestion is practised. I need not detail the technic of securing the patient. It is enough to say that alcoholics, immoderate users of tobacco, robust, gross, and flabby subjects may need the bonds of Prometheus. Beware of the self-sufficient man who is "not afraid" and says he will go to sleep like a baby. He never does.

It may be said that I have magnified the importance of the relations between the anesthetist and the patient. I have not. Let those attest who have experienced such intimate relations.

The anesthetist and the surgeon should be thoroughly in touch with each other. The latter should keep the anesthetist advised as to the work when necessary; that is, when he cannot follow the operation. The surgeon should be ready to work as soon as the patient is ready for it I have seen patients in deep narcosis minutes before the incision was made. "That was only a defect in technic," some one may say. True, but sometimes one error in technic costs a human life. It often has been said that the anesthetist should give his undivided attention to his work and not watch the operation. On the contrary, he should follow the operation from incision to closure. He should know when a sphincter is to be stretched; when the peritoneum is to be incised; when the diaphragm or large nerves are likely to be irritated. But why particularize? Frequent glances at the field, with an occasional word of information from the surgeon, aid to maintain an even anesthesia.

The simplest apparatus is the best. I prefer a

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

four-ounce bottle, a lamp wick two inches long, wound with a few turns of copper binding-wire, and a cork with a slot for the wick and a smaller slot for the ingress of air. The size of the drops may be regulated by manipulating the end of the wick. For a mask, an Esmarch covered with stockinet is best. Gauze is folded over the eyes and about the face to form an ether-chamber, and make a comfortable support for the mask. A wet cotton pad may be placed over the eyes, though it is unnecessary. Suggestion here will be of good service. I generally support the jaw when beginning an anesthesia. This assures the patient and favors voluntary relaxation; indeed, it is good practice to keep the jaw advanced in nearly all cases throughout a narcosis. Toothless patients breathe better if their jaws are separated.

The ether should be fed very slowly at first, then about fifty large drops to the minute until the face flushes. The ether may then be supplied more freely, after having laid from one to three thicknesses of gauze over the mask and wrapped a towel about the head, the better to confine the vapor. At this point, sometimes within two minutes, the patient begins to breathe deeply and is more or less relaxed, so that one sometimes is led to anticipate a pleasant anesthesia. However, one soon may be undeceived. This condition may be termed the pseudo-anesthetic period, often the calm before the storm.

The administration of the anesthetic should never be interrupted until narcosis has been established, except when the operation is nearly ended. The anesthetist who is thoroughly in touch with the work knows when to withdraw the anesthetic. In most cases the ether may be suspended as soon as the peritoneum has been closed. Giving an anesthetic one-half minute longer than necessary is bad technic. Some operators, fearing retching and vomiting, will not permit removal of the mask until after the wound has been closed. Remember, a diaphragm never "kicks" unless abused. So let the anesthetist beware lest he give too much or too little of his agent. When his work is well done there will rarely be occasion to experiment with drugs to prevent or check continued vomiting.

Weak and nervous subjects, yes, and invalids, as a rule, pass into surgical anesthesia without a struggle within from two to five minutes. On the other hand, our friend who said he would go to sleep "like a baby" may cause a deal of trouble from the first; in fact, he may try to the limit the anesthetist's skill and patience. In my experience, about one anesthesia in twenty-five is difficult. Restraint in that one case is easily maintained, but the difficulty hinges on the respiration. The pseudo-anesthetic period may last two or three minutes, then the patient rouses. The respiration becomes labored and perhaps stertorous, while the muscles of the neck grow extremely tense, the jaws lock, and cyanosis sometimes rapidly develops. It is difficult with one hand to advance the jaw of a struggling, bull-necked patient; so I have devised a bottle-holder of lead tape to be use in such cases, as follows: One end of the tape is wrapped about the post near the patient's head, and the other end is made to hold the ether-container. This contrivance is easily adjusted so that the anesthetist's hands are free to elevate the jaw. If respiration does not improve, the tongue, covered with gauze, may be pulled out, leaving one hand free for other purposes. Even this procedure may not avail. If it does not, suspension of the ether for awhile may suffice. Again, it is sometimes advisable to increase the supply of ether and diminish the supply of air. In country hospitals and homes, where nurses and orderlies are not standing round in one another's way, the use of the bottle-holder will be appreciated.

Under the drop-method as practised at the Paynesville Hospital we have never had post-anesthesia complications other than continued vomiting, and that very seldom. In fact, we rarely have vomiting of any consequence. In passing, I will say, we have observed that if a patient retches while on the table he will probably vomit more or less after being put to bed. Furthermore, interrupted and uneven anesthesia is the most frequent cause of retching. We almost never use drugs in connection with ether, for the reason that we have learned to do without them.

Pupillary reactions should be familiar to anesthetists; at the same time, the respiration and lobe of the ear are all-sufficient guides. The respiration is the best guide. That breathing is most desirable which simulates natural sleep, with an occasional long-drawn breath.

Children pass into surgical anesthesia in from thirty seconds to two minutes. Agitation may cause a child's breathing to be jerky and sighing throughout an operation, but it need not excite alarm. A fat, plethoric woman in the Trendelenburg position needs closest attention. Her

breathing is generally bad, especially during work in the upper abdomen. She should have plenty of air and be returned to the level as soon as possible. She should have a minimum of ether. What is a minimum of ether? It is the smallest quantity of that anesthetic consistent with proper narcosis. Some patients may be kept three and a half hours in surgical sleep on eight ounces of ether. On the other hand, that quantity may be used in fifteen minutes to produce profound sleep in a child with large tonsils and adenoids.

The anesthetic art has kept pace with surgery. Today surgical narcosis has fewer sequels than yesterday. Professional anesthetists are more than ever in demand. Medical schools are teaching the theory of anesthesia, but the successful anesthetist comes into his own only by practice. Having arrived he should assert himself. Finally, he should share responsibilities with the surgeon, and not be overlooked when the technic of an operation is canvassed.

Happy the anesthetist who has the operator's confidence, and twice happy the operator who can bestow it.

PROGRESS IN MEDICINE

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UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

THE METABOLISM AND SUCCESSFUL TREATMENT OF CHRONIC JOINT-DISEASE: A PRELIMINARY REPORT

BY RALPH PEMBERTON, M.S., M.D.

American Journal of the Medical Sciences, Oct., 1912, Vol. 144, p. 474

Pemberton calls attention to the fact that little regard has been paid to a study of the dietary regimen in chronic joint conditions, and that a certain number, in spite of surgical correction or mechanical aid in those which show no discoverable focal point of infection, go from bad to worse even under "good hygiene, overfeeding, and underfeeding." He has observed in a number of instances the remarkably beneficial effects of purgation and starvation upon symptoms of certain joint cases, and the question is raised as to whether this be due to the absence of food decomposition and synthyses, to a diminution of intestinal bacterial activity, or to both." In this connection arsenic and thyroid extract both oxidizers in a larger sense, have been known to have favorable action in these cases. Three cases are reported in which active purgation, colonic lavage, and a prescribed diet were instituted. In two of these metabolic balances were made. Total nitrogen, creatinin, ammonia, etherial sulphate, preformed sulphates, total sulphates were determined also the total nitrogen ingested. Briefly, the diet consisted of buttermilk, and reduced meat and sugar consumption. In two of the cases it was found that a negative nitrogen balance existed. In one, this became positive later in the treatment. The bacterial count increased under treatment in the one case (the only one reported). Wright's method of estimating the number of bacteria in solutions was used as a method for estimating the bacterial content.

In analyzing the metabolic balance of the third case, several interesting points were brought out. Excretion of creatinin was not abnormal. Creatinin can be dismissed as a metabolic factor in producing joint symptoms. Ethereal sulphates were increased, and during the second period there was an increase as compared with the first period, although the patient was improving steadily. In the face of the fact that large quantities of buttermilk were ingested the increased ethereal sulphates is a puzzling phenomenon. "If the conjugate sulphates be a true criterion of intestinal putrefaction we must deduce, in this case at least, intestinal putrefaction was not a serious etiological factor, and the cause of disease must be sought elsewhere than in the putrefaction of proteids."

Pemberton then points to the possible noxious rôle played by the carbohydrates, particularly the starches. Clinical evidence goes to show that curtailment of proteid, except milk, will not act beneficially unless there is coincident curtailment of starches.

(Although this report is far from satisfactory as having proven the case, it is an excellent statement of the arguments, and a very suggestive beginning along the lines perhaps of a real therapeutic advance in this group of most difficult clinical entities.)

HENRY L. ULRICH.

THE DIAGNOSIS AND TREATMENT OF DUODENAL ULCER

BY PROF. DR. A. ALBU

The diagnosis should not be made from the history alone. The picture is a variable one, some cases presenting no symptoms, others few.

The majority of cases present a chronic course, lasting many years and characterized by the periodic occurrence of severe attacks of pain, lasting for from three to six weeks and separated by intervals of several months without symptoms. Quite characteristic is the coming on of the pain three or four hours after a meal, but only when the pains are severe, cramp-like, and last for several hours. Especially suspicious is the occurrence of such pains at night. At times the taking of

food gives relief. The same symptoms may be caused by any hyperchlorhydria, even one of purely nervous origin, but here the attacks are never so severe as in ulcer.

Marked emaciation, coming on quickly, is also an important symptom. All other symptoms and signs are of less importance than the above, except one which has up to the present been neglected, and which when present is pathognomonic. This is an intermittent motor insufficiency of high grade, with microscopic or macroscopic food remains, disturbance of amylolysis, presence of yeast, and sarcinæ. This occurs only during the painful attacks and is caused by pylorospasm. During the interval motility is normal.

Especially to be considered from a differential standpoint are ulcer of the pylorus, with or without stenosis; chronic recurring cholecystitis; gastric crises of tabes; and gastric neurosis.

Medical treatment should be tried in all cases. This consists in rest in bed for several weeks, hot compresses, and a soft diet. A certain proportion of cases are cured by such treatment. Only when this has failed is operation advised. Whether surgery gives better prospects as regards recurrences is not certain. Excision of the ulcer would be the ideal operation.

James S. Gilfillan.

NEOSALVARSAN

A Preliminary Report on Ehrlich's New Preparation

By A. G. Rytina, M.D., Baltimore, Md.

New York Medical Journal, June 29, 1912

The claims made by Ehrlich for neosalvarsan are: "(1) high solubility; (2) neutral reaction; (3) as effective as if not more so, than, salvarsan; (4) low toxicity; (5) no reaction symptoms, e. g., diarrhea and vomiting, even after large doses."

The preparation, according to Ehrlich, arises through a condensation of sodium formaldehydesulphoxylate with salvarsan. It is slightly more bulky than salvarsan, 0.9 grams neosalvarsan corresponding to 0.6 grams salvarsan.

For injection purposes the neosalvarsan is simply dissolved in sterilized distilled water and given at room temperature.

Owing to the neutral reaction of the solution and the simplicity of the method, the author, except in the early primary stages, prefers the intramuscular to the intravenous injection. According to the size of the dose, he dissolves the powder in from five to ten c.c. of water. The injections are made into the gluteal or lumbar regions, four injections of 0.9 grams neosalvarsan being given at weekly intervals. Immediately following the injection there is pain, which ordinarily lasts several hours and then gradually subsides. After about twenty-four hours an area of induration, which is usually not tender, develops and usually lasts for a few days. In the hands of the author no complications, such as abscess or necrosis, have occurred. He believes that when given intramuscularly a more prolonged and protracted action of the drug is obtained.

In 21 intravenous injections and 28 intramuscular, the immediate results with neosalvarsan were fully as good as those following salvarsan, spirochetes disappearing within 24 to 48 hours in chancres, mucous patches, and condylomata.

(In the greatly diminished liability to constitutional and local reactions undoubtedly lies the main advantage of neosalvarsan over its predecessor, salvarsan. Its intramuscular administration, notwithstanding the claim to a more prolonged action, seems, however, hardly warranted in view of the intense pain produced and the ease with which it can be given intravenously).

E. T. F. Richards.

THE MEDICAL TREATMENT OF CHOLELITHIASIS

By Paul Mayer, M.D.

The *Lancet* (London), June 1, 1912

Mayer makes a plea for medical treatment and wisely adds that the success attending such treatment depends a great deal upon how early it has been instituted. Not all cases, of course, he says are amenable to medical treatment, and he gives the following classification:

1. Acute cholecystitis should be treated medically; only the most severe form "cholecystitis acutissima" belongs to the surgeon.
2. Chronic relapsing cholecystitis should be treated by operation only when all the suitably employed agencies of medical therapy have failed.
3. Operation should be performed in chronic obstruction of the ductus choledochus if two or three months of medical treatment are without effect. In cases with prolonged remittent fever, rigors, and bad general condition the operation is unquestionably indicated.
4. Hydrops vesicæ felleæ demands operation only if there are persistent and very severe irritative phenomena.
5. Empyema of the gall-bladder and all suppurating processes in the region of the gall-bladder and liver should be operated upon.
6. Adhesions about the gall-bladder should be treated medically so long as the inconvenience produced is not marked. In the most severe cases operation is required.
7. Acute and chronic pancreatitis, resulting from cholelithiasis belongs to the surgeon.

The guiding principle, Mayer states, in the treatment of cholelithiasis consists, not in attempts to aid the expulsion of the stone or stones, but in the allaying the stasis and inflammation already present, and to prevent the formation of new stones. For this purpose, Mayer recommends giving salicylic acid, and advises the use of this combined with extract of belladonna, and also the use of hot compresses over the region of the gall-bladder, and, of course, absolute rest in bed. In addition to these measures he advises giving one grain of calomel every hour for several doses until a typical calomel stool is obtained and the ingestion, either by drinking large quantities on an empty stomach, or by injection, of large quantities of warm water. Diet is also very important and should be light and easily digested, and divided into five meals a day. Mayer considers this very important. Very cold food or cold drinks are contra-indicated. Light gymnastic exercises and deep-breathing are also very important. He cautions against too much purging lest it lead to colic.

He advises these therapeutic measures to be carried out even though the patients are taking treatment at Carlsbad and explains diligently the action of the Carlsbad cure.

John E. Hynes.

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MAY 1, 1913

GLANDULAR EXTRACTS IN EXPERIMENTAL MEDICINE

Pituitary extract and thyroid substance are constantly finding wider fields for experimentation. The former, according to Aubert, *Revue Medicale* for November (*New York Journal* abstract), has been used forty-two times in a series of 355 labors, or in twelve per cent of the cases. The extract is used in the second stage of labor when there is a weakness or arrest of pains.

In thirty-seven cases, 1 c.c. of a twenty per cent solution proved sufficient; in four cases two injections were administered; and in one case four injections were used without effect, and the application of forceps was necessary. In the successful cases the effect of the pituitary extract began five or ten minutes after the injection, the uterine contractions becoming more frequent, powerful, and prolonged. Since the beginning of the employment of this extract, the author claims that forceps-intervention has materially lessened.

The disadvantage of this powerful agent is in securing a clean, reliable extract of the pituitary gland, and unless this is possible harm rather than good may come from its use.

On the other hand, the uses to which thyroid substance can be applied have increased, because the gland may be given in the dry state and can be taken by mouth without marked danger. It can be given to children who are deficient from a lack of thyroid secretion or who are suffering from beginning arrest in the development of brain cells.

R. G. Naylor, in the *Australian Medical Journal* for November, 1912, reports the result of thyroid feeding in twenty cases of mental disease, including primary dementia with or without catatonia, mania, acute and chronic melancholia and delusional and puerperal insanity.

The method of administration is rather heroic. The patient is put in bed and is given one drachm of sulphate of magnesia, and the next day fifteen grains of a trustworthy thyroid preparation, three times a day after meals. This dosage is repeated for four days, and for the following five days the dose is increased to twenty grains three times a day. The drug is then stopped, nourishing foods given, and after fourteen days the patient is transferred in a recumbent position out of doors for a week. The first four days there are headache, a full and frequent pulse, and a rise in temperature of two or three degrees. Some patients become excited during the administration and must be carefully watched.

Twelve of the twenty cases so treated were cured, three slightly improved, and five were uninfluenced. Those in which the greatest increase in blood-pressure occurred were most benefited. This is based on the assumption that the recovered cases had no degenerating brain cells, and the cases unimproved were too late in beginning the treatment.

These experiments were interesting, even if there is doubt about how the recoveries took place. Under favorable circumstances and in selected cases there is no objection to the administration of large doses of thyroids. It is further interesting to note that thyroid substance is not infrequently employed to reduce high blood-pressure in people beyond middle life, and in the cases Naylor reports the reverse seems to hold good.

There is no doubt that many children who are seemingly deficient, irritable, peevish, anemic, and thin not uncommonly pick up wonderfully on thyroid administration, and perhaps some other drug or other measures would do equally well, but the fact remains that thyroid substance intelligently used often works wonders.

LEGISLATIVE SURGERY

No one knows what a legislator will do until it comes out in the newspaper, and when a man knows a very little he cannot keep it to himself.

Among the freak bills introduced in legislatures in various states the one which attracted most attention was that which was introduced in the legislature in Colorado and which made it a misdemeanor to remove an appendix that was not diseased. The bill also provided a fine of from $500 to $1,000 for such an error, and the result of the operation and the presence or absence of the disease was to be passed upon by a medical commission. Think of it, and of the hundreds of thousands of appendixes that are removed annually! Think also of the hesitancy of the surgeon who hears himself called to remove an offending organ! He would deliberate and question and make most careful examination if a law governing the removal of an organ was made a punishable offence if it happened that the organ was not a pathological specimen.

Doubtless some normal appendixes are removed because they are suspected of being abnormal and a danger to the owner, and, in all probability, a few operations for appendicitis are undertaken for gain, but in the vast majority of operations the appendix or other organs are found diseased. Not infrequently a surgeon performs an operation and frankly admits to the patient and his friends that he was mistaken in his diagnosis and that the organ he thought was at fault was normal. If such a freak law were entertained for a moment and succeeded in finding its way to the statutes, it would be promptly vetoed by any sane governor, or, if passed, would immediately be declared unconstitutional by any court of law. Legislation restricting a surgical effort to save life, even if a mistake in diagnosis be made, could not be maintained. The frequency with which surgeons are called upon to do an emergency operation is too well known for argument, and the number of lives saved annually of those suffering from acute and dangerous appendixes cannot be estimated. The legislative doctor who introduced the bill referred to, evidently did not take all sides of the question into consideration. Perhaps he was an ultraconservatist who believed blindly in drugs or the laying on of hands for the cure of disease. He at least illustrated the type of men who get into legislative bodies and who seek notoriety at the expense of his profession. Such men are a menace to necessary legislation. The public knows too well that the majority of laws introduced into legislatures are for personal or local effect, and out of the thousand or fifteen hundred bills drawn not more than one in one hundred are of value to the state. Fortunately, many die in committees, many die from ridicule, and not a few never see the light of day after they are read or printed. When the session is over how many bills are of statewide good?

The medical and surgical men and men who are interested in public health, do not stand in high favor with the average legislator, because the legislator lacks the fundamental or rudimental knowledge of medical science. He cares nothing for it, therefore, and he thinks anything that is advocated by medical men is in the nature of a commercial enterprise. He keeps up this front until sickness overtakes him or his family, then he sends for the physician and finds him helpful, wise, and conscientious, even though he is not thoroughly scientific; but when it comes to legislation in behalf of his doctor he, like the devil, forgets he has ever been sick. The tendency is to encourage legislation against scientific medicine rather than foster and aid in promoting public health. There are a few exceptions to this rule fortunately, but these men are in the minority and are correspondingly helpless.

In Minnesota the legislature is more willing to give $10,000 for a hog cholera-serum plant and $100,000 annually for aid to county agricultural societies than to give $100,000 annually to the State Board of Health. Hog cholera and county fairs are two subjects the legislator understands, but to stamp out communicable diseases or to provide for vital statistics are subjects that are not readily understood by legislative bodies.

MORE THAN ONE MILLION DOLLARS FOR THE TUBERCULOSIS CAMPAIGN IN MINNESOTA!

Our legislators who voted recently for the appropriation to further equip and enlarge the state sanatorium, for the county sanatorium bill, and for the five hundred thousand dollar appropriation to aid counties in building and maintaining sanatoria, have placed in the hands of the people possibilities, the splendid proportions of which when realized will bring this commonwealth into the fore rank with such other progressive communities as Massachusetts, Pennsylvania, New York and New Jersey, where suc-

cessful warfare is being waged against this preventable disease.

The appropriation of two hundred thousand dollars for the Walker sanatorium will provide much needed equipment there and will enlarge the institution from a capacity of about one hundred to about one hundred fifty patients.

The county sanatorium bill permits the Board of County Commissioners of any county to levy a tax not exceeding one mill for the purpose of building, equipping, and maintaining a sanatorium in the county. The bill requires that the County Commissioners shall appoint a local tuberculosis commission of three citizens, one of whom shall be a practicing physician, this commission to have in charge the management of the sanatorium. When these necessary initial steps are taken by the county, the state will furnish a sum equal to that raised by the county for the construction and equipment. For maintenance a subvention of five dollars per week for every free patient is provided by the state. It is estimated that these sanatoria will cost for maintenance about ten dollars per week per capita. This means that the cost of maintenance to the county for a county charge will be less than the present cost of maintaining a patient at the State Sanatorium, which many counties are now doing. For pay-patients the local Commission may require full or partial payments.

The state advisory commission will have supervising control of these institutions.

Patients in all stages of the disease will be admitted, the early hopeful case for treatment and the advanced most infectious cases for isolation, to prevent the spread of infection in the home.

Counties may combine to build and maintain jointly a district sanatorium. The bill provides that no sanatorium shall have less than twenty beds. This requirement can be met at present by thirty-one counties in the state, the property valuation of each of which is sufficient to raise by the tax allowed in the bill at least $10,000. This amount doubled by the state will build and equip an institution of the minimum capacity of twenty beds.

Eight counties have already initiated local preparation for this anticipated legislation. St. Louis County has, under an old statute, a sanatorium in operation for fifty patients, and will now be able to receive state aid for enlarging the work. Ottertail County is building under a county fund of almost $20,000, and may now plan enlargements. The bill further provides that when the cost of constructing a sanatorium shall exceed the amount which may be raised by tax levy, bonds may be issued to defray the cost, but in this case the bond question must be submitted to the voters at a general or special election.

At present Minnesota has, in her one state institution and in municipal and private sanatoria, less than four hundred beds for tuberculosis. We should have at least two thousand beds for this disease.

It is well known that the mortality from tuberculosis in our state remains stationary, while in other communities where public funds have been provided in generous amounts the death-rate has been reduced; e. g., in Massachusetts it has decreased 39 per cent in fifteen years. The appropriations recently made by our legislature, combined with the amounts which should be raised at once by the counties of the state, would increase Minnesota's total number of beds for tuberculosis to at least twelve hundred.

Now that these possibilities have been placed within our reach every citizen of this commonwealth should join in the holy warfare against the greatest foe of mankind, and make these potential institutions realities.

NEW NAMES FOR MEMBERS OF THE A. M. A.

Growing out of conditions no longer to be considered there have existed several names for members of the A. M. A.; and it is now proposed to designate all members by terms with specific meanings.

Dr. Simmons, at the request of the Association, discussed this subject before the State Secretaries' meeting in Chicago in November, and presented the scheme outlined below.

Every physician of a county or district society, affiliated with the Association, becomes a member of the Association upon admission to such county or district society, and is entitled to vote in the election of delegates to the Association, which delegates are elected by the state associations. Such members also have the right to take part in the section work of the Association.

Every one who pays $5.00 to support the work of the Association will be called a fellow of the Association. He will also receive a copy of the *Journal* of the Association.

The delegates will remain the same as now,

and they are elected, as above stated, from the members of the Association.

Applying these terms to the present membership, there would be, in round numbers, 70,000 members, of whom 36,500 would be fellows, with 150 delegates.

Apparently no possible objection can be raised to the plan, and much is to be advanced in its favor, especially that it simplifies matters.

REPORTS OF SOCIETIES

HENNEPIN COUNTY SOCIETY

The regular monthly meeting of the Society was held on April 7th, Dr. Haggard in the chair.

Dr. R. E. Farr presented some cases of fracture of the ankle-joint; Dr. L. A. Nippert, a case of lymphatic leukemia; and Dr. A. C. Strachauer, a case of elephantiasis.

Dr. Sedgwick, the librarian, reported that the Society's library now contains 4,640 bound volumes, 603 unbound reports and transactions, 1,420 reprints, and about 10,000 unbound journals. There were 1,132 readers at the library during the year.

The following is the report of the Necrologic Committee:

Dr. Jonathan William Macdonald died on March 4, 1913, from an organic heart disease after an acute attack of pneumonia.

He was a graduate of the Royal University of Edinboro and a fellow of the Royal Surgical Society of Scotland. He had, ever since his establishment in Minneapolis in 1887, been a member of the Hennepin County Medical Society, of which he has also been president; afterwards, also, a member of the Minnesota Academy of Medicine, to both of which scientific bodies he contributed many valuable papers and where he always was ready to participate in the discussion of medical subjects to the appreciative satisfaction of his audience. He was for a time connected with the Hamline University Medical Department as Professor of Surgery. As a teacher he was much appreciated by his pupils. He was, also, the author of a scientific work upon "Surgical Diagnosis," which is highly regarded by the profession.

Dr. Macdonald was an educated and successful practitioner, a man of excellent qualities, among which must be especially mentioned his absolute truthfulness and probity. He was one of those who placed his patients' interests above his own, and who, therefore, has the greatest reward of their appreciation as well as that of his colleagues.

The Society expresses its regret at his loss and its sympathy to his grieving family and directs that this obituary be transmitted to the bereaved family and a copy be spread upon the minutes of the Society.

The following physicians were elected to membership: Drs. C. A. Hobbs, A. H. Fagerstrom, S. V. Hodge, and A. W. Morison.

Dr. E. R. Hare read a paper on "The Anatomy of the Abdominal Wall in Relation to Hernia."

Dr. Eisendredt presented a specimen of pulmonary embolism; Dr. Maxeiner presented a section of the abdominal wall showing healing two weeks after operation; and Dr. Farr reported a case of fracture of the humerus treated with a Lane splint, followed by excessive regeneration of bone from bone-dust.

The matter of raising funds for the Ohio and Indiana flood sufferers was left in the hands of the Executive Committee.

E. J. Huenekins, M. D., Secretary

NEWS ITEMS

Dr. R. W. Huffman has moved from Evansville to Chatfield.

Dr. L. E. Claydon, of Red Wing, is visiting the Eastern clinics.

Dr. N. F. McCarthy has moved from Richmond to Maple Lake.

Drs. Barbour & Meigs, of Edgeley, N. D., have dissolved partnership.

Dr. J. E. Merrill, of Amboy, is in Chicago doing post-graduate work.

Dr. F. L. Mitchell, of Orient, S. D., is doing post-graduate work in Chicago.

Dr. Roy N. Andrews, of Mankato, is doing post-graduate work in Chicago.

Drs. W. A. Hunt and D. M. Strang, of Northfield, have dissolved partnership.

Dr. S. B. Dickinson, of Watertown, S. D., has been visiting the clinics of Chicago.

The North Dakota State Medical Association meets at Minot on May 7th and 8th.

Drs. James Semple and J. J. Mugan, of Langdon, N. D., have formed a partnership.

Dr. M. B. Smith, of Lake Park, has sold his practice to Dr. R. W. Gunderson, of Minneapolis.

Dr. Sam Chernauset has formed a partnership with Dr. O. C. Maercklein, of Dickinson, N. D.

The bill to license naturopathics in Minnesota was killed by the committee in charge of the same.

Dr. Thomas Smith, of Langdon, N. D., was married last month to Miss Hazel Prom, of Milton, N. D.

Dr. I. J. Murphy, of Duluth, has returned from the East, where he has been doing postgraduate work.

Dr. M. M. Grove, of Dell Rapids, S. D., went to New York last month to attend the clinics of Dr. Friedmann.

Drs. W. J. Mayo and Christopher Graham, of the Mayo Clinic, have gone to Europe on their annual visit to the hospitals.

Dr. B. C. Murdy, of Aberdeen, S. D., is to be married today (May 1st) to Miss Hazel Brown, of St. Cloud, Minn.

Winona is to have a pulmotor, which the gas company of that city will purchase and put at the disposal of the physicians.

Dr. Francis O. Illstrup, of Grasston, died last month. Dr. Illstrup was a graduate of the State University, Class of '94.

Dr. Robert Colwill, formerly of Belfield, N. D., was married last month to Miss Elizabeth V. Blackwell, of Canning, Ontario.

The new $100,000 hospital at New Ulm, erected by the Order of Poor Handmaids of Christ, will be dedicated in a few weeks.

Dr. J. W. Timmons, a homeopathic physician, of Winona, died last month at the age of 79. He came to Winona County in 1870.

Dr. R. G. Stevens, of Sioux Falls, S. D., has purchased the Dunham Hospital, of that city, and will conduct it as a private hospital.

The alienists and neurologists of the country will hold a meeting in Chicago June 24th to 27th, following the meeting of the A. M. A. in Minneapolis.

Dr. A. C. Knight, superintendent of the State Asylum at Warm Springs, Mont., and Miss Mathilde Le Roy, of Anaconda, were married last month.

Dr. Ray Whittier, of Minneapolis, has become associated with Dr. M. S. Nelson, of Parkers Prairie, in the place of Dr. C. J. Bloom, who will locate elsewhere.

Dr. R. G. Perkins, of Rochester, who has been associated with Dr. C. T. Granger, of that city, will enter the medical missionary service in the fall. He will practice in Asia.

Dr. John B. Murphy, of Chicago, delivered a lecture on April 22nd in the medical extension course of the State University. He also spoke before the Hennepin and Ramsey county medical societies.

The Goodhue County Society held its quarterly meeting at Red Wing on April 8th. Papers were read by Dr. L. E. Claydon on "The Surgical Treatment of Goiter," and by Dr. N. L. Werner on "Chronic Pleurisy."

Dr. George Lemcke, who practiced in St. Paul under the name of "Dr. C. Feller," was convicted last month in the Federal Court for using the mails to give information as to where an illegal operation would be performed.

Dr. J. G. Lanont, of Cando, N. D., has been appointed superintendent of the North Dakota State Hospital for Tuberculosis, recently opened at Dunseith. Dr. J. P. Widmeyer, the former superintendent, has located at Rolla for private practice.

Dr. W. R. Baker, of Minneapolis, has become associated with Drs. Bolsta & Karn, of Ortonville. Dr. Baker is a graduate of the State University, and after spending a year as interne in the University Hospital, he became the pathologist of the Northwestern Hospital.

Dr. G. W. Barck, of Albert Lea, died last month, at the age of 81. Dr. Barck was a graduate in Sweden. He practiced three years in Boston, served in the Civil War, and then located in Winona, where he remained three years, moving to Albert Lea in 1867.

It was stated in our issue of April 1st that a new board of health and medical examiners had been appointed by the governor of South Dakota. The law providing for the new board does not go into effect until July, and the governor will not appoint the members of the board until after the law becomes effective.

Dr. F. J. Sykora, of Brainerd, has received the great honor of a call to the faculty of the Rockefeller Institute of Medical Research, of New York. He is one of six young scientists recently selected by Council of the Institute. The initial salary is $5,000 a year, but the pros-

pective salary, that paid to associate professors, is $25,000 a year.

The issue of the *Journal of the American Medical Association* of May 10th will be known as the Minneapolis Number and will be the pre-convention issue, in which full accounts of the coming meeting of the American Medical Association will appear and in which the opportunities presented by Minneapolis as a convention city will be duly set forth and illustrated.

The Clay-Becker, the Red River Valley, the Park Region, and the Upper Mississippi Societies held a joint meeting at Wadena last month. Besides the papers presented by members of the societies, Dr. A. MacLaren, of St. Paul; Dr. S. Marx White, of Minneapolis; and Dr. H. E. Robertson, of the State University, read papers. Dr. Robertson's paper was delivered before the public, and was on cancer, lantern-slides being used to illustrate it.

At the annual meeting of the Stearns-Benton County Society, held last week in St. Cloud, the following were elected officers for the current year: President, Dr. Geo. E. Sherwood, Kimball; vice-president, Dr. C. S. Sutton, St. Cloud; secretary-treasurer, Dr. J. C. Boehm, St. Cloud; delegate, Dr. W. L. Beebe, St. Cloud. Dr. Sutton read a paper on "Early Operation for Gallstones," and Dr. J. H. Beaty read one on "Tuberculosis of the Spine."

Arrangements are pending for an address to be delivered at the Association of American Teachers of Diseases of Children, which meets in Minneapolis on June 16th, by the Hon. Ben Lindsey, the famous juvenile court judge of Denver. Medical and social workers in Minneapolis and vicinity will be interested in hearing Judge Lindsey; and, since his visit is timed with reference to the numerous gatherings which group themselves around the meeting of the American Medical Association, it is probable that he will be heard from more than once and from other platforms than that of the society mentioned.

Dr. Avah F. Whitman, of St. Paul, died last month at the age of 82. He was practically the last of the old school of pioneer physicians who remained in active practice in St. Paul. He was a member of the first class (1851) that graduated from the University of Wisconsin. He graduated in medicine from the University of Michigan in 1865, and moved to Minnesota in 1868. He took several post-graduate courses, being under such men as Sims, Flint, Loomis, and others. He was a regular attendant of the St. Paul Medical Society, and has been the Society's necrologist since 1896. His was, indeed, a remarkable career.

ASSISTANT WANTED AT ONCE.

A recent graduate with hospital experience as assistant in busy general and hospital practice. One who speaks Norwegian preferred. Salary with rapid opportunity for advancement. Address B. W., care of this office.

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Do you want actual experience in ear, nose and throat work? Two physicians are wanted to work in the ear, nose and throat department of the St. Paul Free Dispensary. For particulars write Dr. A. C. Heath, Lowry Bldg., St. Paul, Minn.

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One McDonald leather upholstered physician's chair of high-grade quality; also one Globe nebulizer; both in splendid condition. Will sell both for $45.00. Address E. L. A., care of this office.

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The treatment in the Sanitarium is not to be described or characterized by a word. The claim of the management is that it is "Nature's way," but this claim is broad to be appropriated by a man or an institution. That diet, baths, massage, and "atmosphere" are Nature's best aids, no one can deny; and these things the Sanitarium has, and probably the best is the institution's "atmosphere." And what is "atmosphere"? The reader must answer, but to know the Battle Creek "atmosphere" one must go to be in it, to investigate, and to see it work.

This handsome volume, which tells a story of great human achievement, should be read by every physician. It is intensely interesting.

THE USES OF DIGITALIS AND STROPHANTHUS.

Among the heart tonics, Eichhorst mentions a considerable number as demonstrably of value as shown by animal experiments, but concludes that clinical experience indicates that only two are reliable, the preparations of strophanthus and those of digitalis. While, in the opinion of the author, strophanthus deserves the first place, according to experimental researches their relations must be reversed in practice. Digitalis is the medicament of first choice. Of the preparations of digitalis, Eichhorst gives the preference to the powdered leaf and to the Digalen of Cloetta—"Practical Medicine Series," General Medicine, Vol. 1, F. Billings and Salsbury, page 208.

LILLY'S LIQUID SOAP

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forms of rheumatism is its use indicated? These questions are being asked. From the literature on the subject it is learned that Rheumatism Phylacogen is applicable to acute rheumatic fever, acute articular rheumatism, acute inflammatory rheumatism, chronic rheumatism, rheumatic arthritis, rheumatic myalgia, rheumatic neuralgia, rheumatic iritis, lumbago, sciatica—in short, to all pathological conditions due to infection by the streptococcus rheumaticus. From the same source are gathered these suggestive hints upon the subject of diagnosis: "True rheumatism must be differentiated from septic arthritis, tubercular arthritis, gonorrheal arthritis, gout, arthritis deformans, traumatisms, etc. The failure of Rheumatism Phlyacogen, properly administered, affords presumptive evidence of an error in diagnosis." In the case of chronic rheumatic conditions stress is laid upon the fact that continuous treatment for three or four weeks may be necessary. If, however, the patient does not show continuous improvement, it is urged that the treatment be discontinued and a careful re-examination made so that the exact pathological condition may be determined.

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SEMEIOTIC SIGNIFICANCE OF PATHOLOGICAL FINDINGS IN INFANT FECES*

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WINONA, MINN.

Part I—On Food Remnants

The semeiotic significance of the pathological findings in infant feces presents a diagnostic method in recognizing intestinal disturbances. The examination of infant feces differs somewhat from the examination of adult feces, in that we have to deal with the cow-milk-fed infant and the breast-milk-fed infant. The disturbances of the alimentary tract in the infant are divided into two divisions, those due to the food digestion and assimilation, and those due to other than food ingestion, or, we might say, to functional disturbances in the former, and organic disturbances in the latter. An infant that does not gain in weight, that does not have its required amount of sleep, that has diarrhea or constipation, that vomits, that has a regular rise of temperature and symptoms of intoxication, surely has a functional disturbance due to its food.

Number.—The normal number of stools in a cow-milk-fed infant are one to two in twenty-four hours; less than one indicates poor fat-metabolism; more than three, poor starch- or sugar-metabolism. The normal number of stools in a breast-fed infant are two to four per day. Less than two indicates poor fat-metabolism; more than four, poor starch- or sugar-metabolism.

Quantity.—A large stool is significant of bad absorption or supersecretion. In 1,000 grams of the stool of a breast-milk-fed infant there is three per cent of solids normally, while in the cow-milk-fed infant there is 5.25 per cent of solids. Large intestinal disturbances give a large number of stools, but small amount at a time. The time of passing of a stool is twelve to twenty-four hours. The breast-milk-fed infant passes faster than the cow-milk-fed infant. Small intestinal disturbances show large stools, but few in number.

Consistency.—The consistency of the stool depends on its cohesive and adhesive qualities. In the cow-milk-fed infant, if the stool falls off the diaper by shaking it, it is a soap stool and is always alkaline, light, and characteristically dry, and is significant of too much fat. If it is of a sticky consistency and filled with mucus and is brownish-yellow in color, if a breast-milk-fed infant the babe is not getting enough to eat or too small an amount of fat.

Color.—The color of infant feces depends upon, first, nourishment; second, oxidation; and, third, reduction.

We test out oxidation with the guaiacol test. The oxidation material will turn red, which means good oxidation. Green feces of a breast-milk-fed infant with this test positive show good oxidation.

The color due to reduction is caused by bile and bacteria. Reduction due to bile has a special significance, for in bile we have, first, biliverdin; second, bilirubin; third, urobilinogen; fourth, urobilin. We test out bilirubin by using the Nakajama reagent. For urobilinogen we

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

use the Ehrlich's aldehyd reagent. For urobilin we use the Schmidt test, and if all are negative we have biliverdin. The breast-fed infant is normal if the bilirubin is positive, the stool green, and not adhesive; but, if urobilin is present, it is significant of intestinal fermentation. In the cow-milk-fed infant's normal stool the urobilin is positive, yellow, and cohesive; but, if bilirubin is present in the same specimen, it is small intestinal fermentation. The presence of bilirubin and biliverdin always speaks for good oxidation. The presence of urobilinogen and urobilin indicates good reduction.

Reaction.—The breast-fed infant has a more acid stool than the cow-milk-fed infant. In 100 grams of feces of a breast-fed infant 25 c.c. acidity of the NaOH is normal. In the cow-milk-fed infant 100 grams of feces with 11.33 acidity of the normal NaOH is normal. The above is working with litmus as an indicator. In the breast-fed infant with litmus paper the stool is acid, while in the cow-milk-fed infant it is alkaline or neutral; anything else is pathological. Starches in diet make the stool acid; flour and sugar make the stool acid. The reaction of buttermilk is alkaline stool; otherwise it makes it pathological. All flour diets make acid stool normally.

Specific Gravity.—By estimating the specific gravity of a known weight of feces we are at once informed of the kind of stool. The normal specific gravity is 1040 to 1060. Fat stools have a specific gravity of 1000 or less, while starch stools have a specific gravity of 1060 or more. The significance of the fat stool in excess with the clinical picture before us, as Czerny has shown, is in the food which causes the trouble.

Fat.—If the relation of albumen to fat is one to three, the stool is acid normally; if the relation is one to one, it is alkaline. The soap stool is alkaline, and we have a hyposecretion of the large intestine with putrefaction. In fact, fats absorbed must be split up into fatty acids and glycerine. The normal absorption is eight grams for every kilogram of weight, and to get at this absorption you give an infant a fat-free diet for three days and estimate the fats in the stool. Then give a measured quantity of cream with the known quantity of fat, and estimate the fat in the stool. The difference between the cream stool and the fat-free stool is the fat absorption. Again, if fats in the stool have a higher melting-point than normal, the absorption is good. In breast-fed infants there are more neutral fats in the stool, while in cow-milk-fed infants there are more soaps. You find fats in all stools, but if you find nothing but fat it is pathological. If we have a stool from constipation the fats may be combined with soaps, and this we test out by using the sulphuric-acid test or the acetic-acid test, and look for neutral fats and calcium salts. By cutting fat down or leaving it out and replacing it with carbohydrates, we relieve the trouble. We have here indeed a striking illustration of the paradoxical reaction. Fat has the largest caloric value of all food components. By increasing it quantitatively in the food we would reason that a gain in weight should ensue. Here we see not only a loss, but no gain or improvement, in the infant's condition unless the fat is practically excluded from the diet.

Albumin.—In a normal stool of the cow-milk-fed infant or breast-milk-fed infant there is no albumin. To test albumin by using the Schmidt test we recognize whether albumin is present or not. We estimate the amount of albumin absorbed by the Kjeldahl method for nitrogen, and multiply by 6.25, which gives approximately the amount of albumin absorbed. Albumin in the stool is significant of small intestinal fermentation and putrefication. Here the symptoms of general rise of temperature are marked; and the withdrawal of the albumin in the cow-milk-fed infant relieves the condition.

Sugar.—The normal stool has no sugar. By using the Hect method we can find sugar. The presence of sugar in the stool indicates an active fermentation in the small intestines with a hypersecretion of mucus. The bowels will be distended with gas, and the irritation from sugar non-assimilation will cause a catarrhal condition of the mucous membrane. The fever of intoxication is no doubt caused by the food component, with sugar and salts. This can be demonstrated by withholding all food and giving liberal quantities of water sweetened with benzosulphide for one to two days, when the symptoms of intoxication will disappear. The sugar we have to deal with is milk sugar, which has its own melting-point of 160° centigrade, and having its own ferment it can be easily recognized if present in the feces. As milk sugar with the salts of the milk have a tendency to increase irritation and intoxication the importance of recognizing sugar in the feces will be readily seen.

Carbohydrate.—In cow-milk-fed infants that have used the modified milk with some starch-solution the symptoms of poor digestion and as-

similation present themselves. We find the stool decidedly acid with the fermentation test. Sometimes, if the fermentation test is negative with an acid stool of this kind, it is still too much starch indigestion, for heavy starches give a negative reaction to the fermentation test. The recognition of this condition by withholding all starches immediately relieves the trouble.

PART II—PATHOLOGICAL SECRETIONS: PARASITES, BACTERIA, CRYSTALS, AND MUCUS

The appearance of mucus in the feces indicates the existence of an inflammatory condition of the mucous membrane. It is the sole reliable sign of this. To this we have two exceptions: first, the thick coating that on drying feces looks like varnish is occasionally found on hard masses; and, secondly, the mucus that follows neurotic conditions. The higher up the inflammation the smaller size the mucus. When mucus arises from the small intestinal stool, it is liquid in consistency, and the mucus is green in color and interspersed with half-digested cells and cell nuclei. The more thick the mucus with cells, especially round cells, the more intense the inflammation. When only mucus and no stool comes, it is either sigmoid or rectum inflammation. When mucus and stool are mixed and mucus is small in size and green in color, it is small intestinal inflammation. Frequent diarrhea without mucus is neurotic; and when the mucus is large in amount and has no cells it is also neurotic. When there is microscopic blood in the mucus, it is inflammatory, and when there are leucocytes in the mucus it is also inflammatory. By using brilliant-green and neutral-red solutions with mucus, mucus turns red, and soaps turn green. By mixing osmic-acid solution with mucus it turns black. The difference between mucus and nucleoproteid is as follows: lime water and acetic acid precipitate proteid, but mucus does not; proteid reacts to the phosphorus test, but mucus will not; mucus by making acid will react to Fehling's solution, but proteid will not.

Blood.—Some stools on microscopic examination show no evidence of blood, but on chemical examination with the benzodin-aloin and guaiac tests, respectively, give reaction to blood. It is significant of enteritis follicularis, small polypi, slight inguinal hernia, slight intussusception, and duodenal ulcer.

Pus.—Pus in small amount mixed with feces and mucus is significant of ulcerations. When in large amounts it signifies the discharge of an abscess through a fistulous opening or an abscess pocket.

Parasites.—When parasites are found the ova of many kinds are to be kept in mind, but the great majority are rarely seen. However, the most important ones are the ascaris lumbricoides, oxyuris vermicularis and the trichocephalus dispar. By using physiologic salt solution the eggs can readily be seen and show up well under the microscope. The presence of ova of any kind will account for many of the clinical symptoms.

Crystals.—The crystals that are found are the fatty acid, triple phosphate, hematoidin, and the Charcot-Leyden. We find fatty acid crystals in all breast-milk-fed infants, but if we find nothing but fatty acid crystals it signifies bad absorption of fats or too much fat in the feeding. When triple phosphates appear in the feces it signifies intestinal putrefaction, or the stool has been infected with urine. And we must at once test out for urine by the Heet method or by the Strausberger method. The Charcot-Leyden crystals may be found in certain febrile conditions, but usually are associated with intestinal parasites, and the three most common are the ascaris lumbricoides, the oxyuris vermicularis, and the trichocephalus dispar. Hematoidin crystals are found in gastro-intestinal hemorrhage of any kind. The number of crystals is usually directly proportional to the quantity of blood, and the number is usually influenced by the site of the hemorrhage, the smallest number being generally found in hemorrhage of the rectum.

Bacteria.—It is not within the scope of this paper to take up all the various bacteria and their clinical significance. But, in view of the fact that such investigators as Krause of Germany, Deyck of Turkey, Drigaski of Prussia, and Flexner, Duval, and Mason of our own country, have isolated the bacillus of Shiga in the summer diarrhea of infants, it appears warrantable to mention the Shiga bacillus. From the fifth to the seventh day of the disease the bacilli are abundant in the blood and mucus of the digesta, but with the establishment of convalescence the bacilli usually disappear. Mason states that if the bacilli agglutinate with the patient's serum, if no gas is produced, and the milk is not coagulated, the bacilli are dysenteric. The great number of bacteria in the stool are non-pathogenic, and the estimation of the total amount after the Strassberger method has special significance. The nor-

mal amount in a cow-milk-fed infant of two months is 11.15 per cent; in a breast-fed infant of the same age 25.8 per cent. In cases of severe dyspepsia the non-pathogenic bacteria will amount to 40 to 60 per cent. After one month on the Metchnikoff milk the bacteria will return to 25 per cent in the breast-fed infant and to 11 per cent in the cow-milk-fed infant.

"Superstition and reason, quackery and orthodoxy, metaphysics and theocratics, wisdom and folly, observation and experiment, have, in turn, served to construct the foundations of the magnificent edifices of research and practice of modern times. The modern dominant ideals of medical science are founded on the sure ground of clinical observation, experimental research, and pathology. It must not be forgotten that it is necessary to subject these ideals to the most jealous scrutiny and the closest criticism, for, in matters that affect human betterment, nothing but the best possible orientation of effort that can be conceived is satisfactory."

The following tables are based upon two years study abroad in the hospitals and laboratories in Berlin and Vienna and upon 294 laboratory examinations and cases in my own laboratory during the past five years.

NORMAL

Number: C.—1-2. B.—2-4.

Quantity: C.—5.25% Solids in 1,000 grams milk fed. B.—3% Solids in 1,000 grams milk fed.

Consistency: C.—Cohesive. B.—Adhesive.

Color: C.—Yellow. Urobilin. B.—Green. Bilirubin.

Reaction: C.—11.33% acid. B.—25% acid.

Specific Gravity: C.—1020-1040. B.—1040-1060.

Fat: C.—Soaps. B.—Fat neutral and fat needles; mostly neutral fat.

Albumen: C.—Nothing. B.—Nothing.

Sugar: C.—Nothing. B.—Nothing.

Starch: C.—Nothing. B.—Nothing.

ABNORMAL

Number: C.—Less than one; poor fat metabolism. C.—3 or more; poor sugar, salt, starch metabolism. B.—Less than one; poor fat or albumin metabolism. B.—More than four; poor sugar, salt, starch metabolism.

Quantity: C. and B.—Stools large and few in number; supersecretion or bad absorption, and small intestinal disturbance. C. and B.—Stools small and many; large intestinal disturbance.

Consistency: C. and B.—Liquid stool; small intestinal disturbance. C.—Increased cohesiveness; soap stool; poor fat metabolism. B.—Increased adhesiveness; hunger stool; poor fat metabolism.

Color: C. and B.—Poor oxidation; small intestinal disturbance. C.—Bilirubin; small intestinal fermentation. B.—Urobilin; small intestinal fermentation.

Reaction: C.—Over 11.33% starch; sugar excess; small intestinal disturbance. B.—Over 25% starch; sugar excess; small intestinal disturbance. C.—Less than 11.33% albumen excess; small and large intestinal disturbance. B.—Less than 25% albumen excess; small and large intestinal disturbance.

Specific Gravity: C. and B.—1,000 or less; fat stool. C. and B.—1,060 or more; sugar and starch stool.

Fat: C.—Soap stool; hypersecretion; large intestinal disturbance; melting point low: poor absorption of fat. B.—Fat stool, hepatic or bilary; adnexia or pancreatic disturbance.

Albumin: C.—Putrefaction and decomposition; small intestinal disturbance. B.—Poor absorption with small intestinal putrefaction.

Sugar: Active fermentation in the small intestines, catarrhal condition of mucous membranes.

Starch: C.—Decided acid fermentation; small intestinal disturbance. B.—Decided acid fermentation; small intestinal disturbance.

Mucus: Without cells, neurotic. With cells, catarrhal. With round cells, inflammatory. With erythrocytes, inflammatory. With leucocytes, inflammatory. With cells and regular stool, sigmoid or rectum. Green with cells, small intestinal.

Pus: Mixed with mucus and green, small intestinal ulceration. Mixed with mucus and not green, large intestinal ulcer. Pure and not mixed with mucus, abscess drainage.

Blood: Enteritis follicularis; small polyp. Slight hernia, slight intussusception and ulcer of duodenum.

Parasites: Ova of tenia nana. Ascaris lumbricoides, oxyuris vermicularis, and the trichocephalus dispar.

Crystals: Triple phosphates—Test for urine. If negative, it is putrefaction of the albuminoids; large intestinal disturbances. Charcot-Leyden—Ova of parasites or febrile condition. Fatty Acid—Poor fat metabolism. Hematoidin—Small intestinal hemorrhage.

Bacteria: Pathologic—Shiga, tubercle, typhoid, diphtheritic. Non-Pathologic—B.—Over 25%, dyspepsia. C.—Over 11%, dyspepsia.

TESTS

Number: No test.

Quantity: Dry feces of 1,000 grams of milk that is fed. Estimate % solids.

Consistency: No test.

- Color
  - Oxidation
    - 1 c.c. 1% sol. guaiacol; 1 c.c. 3% sol. hydrogen peroxide; Feces and water — Red or rose color.
  - Reduction
    - Bacteria
      - Heat tube feces and water, methyl blue sol. 1 hr. in therm-o. — Upper part blue, lower part white.
    - Urobilinogen
      - 5% di-methyl-amido-benzo-aldehyde. 20% HCl. Feces and water.
      - Exceptions: Indol same reaction; to overcome this macerate with benzine and wash with water. — Rose or pink.
    - Bilirubin
      - Feces, 1 gram; Sodium Sulph., 1 gram; Barium Chloride, 10% Sol., ½ dram; Nakajama reagent, 2 c.c. of HCl, 1,000 c.c. Ferric chloride, 4 c.c. — Green.
    - Urobilin
      - Feces and water; Aq. bichlorid Hg. — Brick red.
    - Biliverdin.—Above all negative, biliverdin present.

Reaction: Normal NaOH sol. Titrate with litmus sol. as indicator.

Specific Gravity: Weigh glass cylinder; place small piece of feces in cylinder; then weigh; add known quantity of water and see displacement. Difference in weight times difference in displacement times 100 gives specific gravity.

Fat: Weigh stool; take 2 c.c. stool; estimate fat in same. Stool 2 c.c.; caustic pot. 5 grams; add 10 c.c. H_2O. To dissolve put in water bath 20 minutes until all dissolved; then add 100 c.c. 95% sol. alcohol. Add alkaline-blue 2% until it turns red; then cook 20 minutes; then add con. HCl until acid and blue color reappears; then filter it and place in clean dish and evaporate by water bath until dry. Place dry residue in Hect apparatus and add boiling H_2O till rises to top. Each gram line of fat 4 cent. grams fat add one line for side of glass.

Albumin: Feces. Carbo ligni. Boil. Filter and use the biuret test.

Sugar
- 5 c.c. stool
- 2 c.c.
- 2 drops phenalhydrazin
- 50% $C_2H_4O_2$
- Sodium acetate, sat. sol.
- Bottom of bottle sediment.

Cook in Hecht tube until evaporated down to 3 line; then look for needles in sediment.

Starch: Fermentation test of Schmidt in acid stool. Feces and acetic acid 1 gram each and 5 grams ether; shake; pour off the ether extract.

Blood
- Benzodin test — Benzodin 1% sol. of acetic acid; boil; add few drops of H_2O_2. Pour the above over the ether extract of feces. — Color, green
- Aloin test — Alcoholic extract of aloin; add a few drops of H_2O_2. Pour the above over the ether extract of feces. — Color, red
- Guaiac test — Alcoholic extract of guaiac wood; add a few drops of H_2O_2. Pour the above over the ether extract of feces. — Color, blue

Pus—Look for pus cells under microscope.

Mucus
- Use Gerhardt test for pus.
- Brilliant green, 1% sol. 1 pt., Neutral red sol., 1% 1 pt.; dilute to a light blue color. Macerate feces with water and pour the above sol. over the same. — Color, red or rose.
- Osmic acid, 1% sol. Pour over macerated feces. Stained green, small intestinal. — Color, black.
- Microscopical
  - Nuclei of cells.
  - Round cells.
  - Leucocytes.
  - Erythrocytes.

Parasites — Normal salt sol.
- Trichocephalus dispar.
- Ascaris lumbricoides.
- Oxyuris vermicularis
- Tenia nana.

Crystals
- Charcot-Leyden
- Triple phosphates
- Fatty acid
- Hematoidin

— Macerate the stool with water; filter; add HNO_3; then add $AgNO_3$ heavy precipitate, chlorides: light precipitate found in all feces.

BACTERIA

Shiga, tubercle, diphtheritic, typhoid.

Estimate total amount of bacteria.

1. Combined amount of stool in one day.
2. Determine amount bacteria in 2 c.c.

Take two specimens, 1 of 2 c.c. of dry feces and the other 2 c.c. of moist feces.

2 c.c. of moist stool, rub thoroughly together with 30 c.c. of ½% of HCl sol. Add alcohol and ether and shake, which dissolves the fat. Then centrifuge. Then you have three layers. The middle layer holds the bacteria. Draw off the middle layer with a curved pipette. To the remainder add equal parts of alcohol and ether, and mix again and centrifuge. Then decant off the alcohol and ether. Then add 30 c.c. of ½% sol. of HCl to the sediment; rub up and centrifuge again. Extract this middle layer, and proceed again with the residue the same as before until you have the middle layer perfectly clear. Test out one drop for bacteria with a glass slide under the microscope, from this clear middle layer and use methyl violet. You will always find some bacteria. All this extracted bacteria solution should be collected and divided into 4 parts. Then add to each part 60 c.c. of 95% alcohol, and evaporate each part down to 60 c.c. You have now only the sediment of the bacteria. Add ether to each tube and let stand for 24 hours; then take sediment, and pour in capsule and wash with alcohol; then dry the sediment, and compute the figures from the dry 2 c.c. stool.

DISCUSSION

Dr. J. P. Sedgwick (Minneapolis): The manner in which Dr. Robbins has discussed this subject shows his familiarity with it, both from a theoretic and a practical standpoint. Some of you missed some of the terms you have heard before when this subject has been up for discussion, and I wish to congratulate the essayist upon the fact that they were omitted. In the first place, you formerly heard a great deal about curds; but you did not hear anything about curds from Dr. Robbins, because he mentioned in his discussion soap stools,—the hard, white, dry soap stools, the importance of which Czerny has shown, and most of the so-called curds of the earlier day were really soap stools. A few curds may be found in the stools, but they are exceptional. If we feed a child too much milk we do not usually get casein curds, but soap stools, hard, white, and dry. You can feed a child a large amount of protein, as in buttermilk or in the casein milk preparations, and get something which appears like a curd, but which is really fat and soap. I have with me a sample of the soap stool which illustrates what we get from the use of Finkelstein's casein milk. We should congratulate Dr. Robbins on forgetting about curds, and holding on to the teaching of Czerny, whom we recognize today as a leader in pediatrics.

I also congratulate Dr. Robbins for speaking of benzosulphinidum, which is in accordance with the work of the Council on Pharmacy and Chemistry of the American Medical Association in doing away with the proprietary name. We should all try to aid in the use of such a name as this instead of the proprietary name by which it has been sold for years.

With reference to the reaction of the stools: That is going to require some further study. The reaction of all body fluids has got to be re-studied; the reaction of the urine was supposed to be due to the phosphate: the reaction of the stomach-contents to hydrochloric acid; and the same thing applies to the stools. We have to go through the whole thing again, viewing it from the standpoint of modern chemistry and making examinations to see how many free hydrogen ions we have. We must go into the physico-chemical methods for the determination, accurately, of what we mean by acidity.

There are substances which we find in the stool, which may be beyond the scope of the paper. We find the results of some medication in the stool. I recall one case very vividly. The grandmother was a Christian Scientist and tried to make trouble. It was supposed that the bismuth subnitrate had been furnished by a reputable pharmacist, and they insisted that he had made some mistake, as the stool did not turn black. I made an examination by applying hydrogen sulphide to the stool and showed that it turned black promptly. Bismuth, as it is passed in the stool, may be present in rather large quantities without appearing black.

I wish to congratulate this Association on having had

a paper showing modern means of examination of the feces in infants.

Dr. O. W. Rowe (Duluth): The importance of the study of the feces of all children, sick or well, can hardly be overestimated. To realize how important it is we have only to recall that during the last ten years all of our advances towards our present conception of metabolism and absorption as well as digestion, have been possible because of a better knowledge of stool-examination. But at times some may be prone to make a diagnosis from one examination or from the examination of the stools alone. While this is possible in certain types of disorders, we must regard this method only as an aid to physical examination. To illustrate: The essayist says that a child on a cow's-milk diet is suffering from an error in metabolism of sugars and salts when it has three or four bowel movements per day. This may be true, but even those who believe that the etiologic factors in dyspepsia are always the sugars, can conceive that a high fat content of the food might be irritating to the intestinal canal and thus cause more than three evacuations daily, directly, rather than by lowering the tolerance for the sugars.

Again: We have a type of diarrhea due to the efforts of an internal metabolism to rid itself of a toxin, as in tuberculosis or syphilis. All efforts to correct this condition by modifying the carbohydrate content of the diet are without result. Errors in these types of cases, will, of course, be avoided by making a careful physical examination.

TUMORS OF THE TESTICLE AND EPIDIDYMIS*

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There is probably no class of cases more sorely neglected by the average practitioner than the diseases of the testicle, first, on account of the delicacy of approaching the sick man on this subject; second, because the patient resents the idea of having any one know of his condition, and; third, because the family physician pays very little attention to this class of disease.

As a result of this neglect the advertising man, whose business it is to prey upon this class, finds many a gullible subject.

I was led to study this line of work more closely on account of meeting and visiting with an "I Cure Men Specialist" in Chicago last year, when I was taking post-graduate work. He explained to me most thoroughly how, except in syphilis and gonorrhea, the general practitioner was not aware that the men he had been treating for other diseases were suffering from these conditions, and, when the time was right, would sneak away and have an operation, and he, the quack, would get the case.

In the last year I have discovered seventeen cases in my own practice; fourteen of them had been treating with me previously for other complaints, and with no intimation of their real condition; five of these cases I have operated on; seven have left my section of the country; the remaining five are carrying their burdens with them.

Tumors of the testicle are of many forms; almost any neoplasm may occur, even the benign connective-tissue tumors. The lipoma, fibroma, enchondroma, and osteoma, while found most frequently affecting the scrotum and the cord, are sometimes encountered in the testicle.

The most common form of tumor is the carcinoma, which may be either the medullary (encephaloid) or the scirrhus, the scirrhus being seldom found, however.

In the etiology we find that the most common cause is some form of injury, and generally we elicit a history of an acute orchitis, which is followed by a new growth. Retained testicle is also a cause, but some form of injury or constant pressure has again caused these malignant changes.

The encephaloid testes, on section, will be found to have a pinkish-white color, and the stroma generally consists of delicate fibers, although in some cases we find the dense fibrous condition, which would suggest a combination of both forms. If it has undergone degeneration, there are blood, mucus, and caseous material, and also a yellowish-white fluid, known as "cancer juice."

The scirrhus form is found mostly in old people and is of very slow growth. Its composition is mostly dense, connective tissue.

Of the sarcomata we have the myxosarcoma, fibrosarcoma, chondrosarcoma, giant-cell sarcoma, angiosarcoma, alveolar sarcoma, and melanosarcoma.

Fibrosarcoma is characterized by its density and hardness, due to fibrous connective tissue In chondrosarcoma there is present in the growth hyaline cartilage. In cystosarcoma, we find liquefaction from necrosis, or, when hemorrhage

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has taken place, there are also small cavities in the tumor. Giant-cell sarcoma contains black pigment in the cells and intercellular substance. The myxosarcoma undergoes myxomatous degeneration.

Cystomata of the testicle are rare. They range in size from a mustard seed to a half an inch in diameter.

Enchondromata originates in the interstitial connective tissue of the organ and are cartilaginous.

Fibroma, myxoma, myoma, osteoma, and teratoma (dermoid cyst) are rarely found in the testicle, and therefore we shall not consider them.

The clinical history of all of these different forms of tumors is so nearly the same that it is practically useless to try to make a differential diagnosis, therefore only the symptom complex of all of them need be given.

As benign tumors of the testicle may become malignant at any time, and as certain forms of malignant tumors appear to be benign, it is almost impossible to say, clinically speaking, just when a tumor will jeopardize a patient's life. The benign cystic form may attain considerable size, then lie dormant for years, subsequently become malignant, and assume a rapid growth. Carcinoma apparently develops faster than other forms of tumors, although in one of my cases a sarcoma of the testicle grew in five months from the date of injury, to be so far advanced that surgical interference was deemed inadvisable, and the patient died three weeks later. I think this case was aggravated, however, by the method used in treating him by a quack institution of St. Paul, which had been making injections for hydrocele. I wish to state here that every case I operated on or examined, except one, I found a hydrocele, although some authors state that it is uncommon. This fluid may absorb and mislead a person as to the exact condition present. Pain may be constant and severe; in some it is neuralgic, and in others it comes on periodically and lasts only a short while. Testicular sensation is usually lost. The surface of the tumor is smooth and even at the beginning, but nodular and irregular in shape as it grows, due to perforation of the tunica albuginea. The size will vary from that of a walnut to that of a small head. The density of the tumor depends upon its contents and the amount of the connective-tissue growth. The iliac and lumbar glands are affected as the disease progresses; the inguinal glands do not enlarge until the disease has extended to the scrotum, for the lymphatics of the testicle drain into the iliac and lumbar glands. The scrotal glands enlarge in the later progress of the disease, and as the growth extends it involves the scrotal fascia and skin, and sort of eats its way to the surface, where it forms a fungus, which becomes angry and vicious in character.

The differential diagnosis must be made between chronic epididymitis, syphilis, and tuberculosis. This can best be done by taking up the history, size, shape, urinary findings, course of the disease, the use of the aspirator (to determine the contents of the growth), and the use of the mercury and KI treatment or Wasserman reaction.

The treatment of tumor of the testicle is the removal of the gland, but to suggest the proper treatment and to put it into practice is, to use "street parlance," a horse of another color, for a man will do most anything rather than be wholly or partially unsexed. With many of them the testicle is the center of gravity around which their mental, moral, and physical being revolves. Their one thought is the after-effects, and this brings up the subject of internal secretions in adolescence. While the mental effect upon some patients is very little and does not seem to affect their lives in any way, in others it has a very different action. Their physical as well as mental being suffers. White states that the function of the testicle is twofold; the reproduction of the species and the development and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function, the one with which we are concerned when full adult life is reached, is universally conceded. Keyes, while believing that the internal secretion continues in adult life, still attributes most of these mental and physical disturbances of adolescence to the fact that the patients whose lives are centered around these organs realize their loss forever.

I will give the treatment I adopted in my clinical reports:

Case 1.—Patient, M. D.; aged 40; occupation, ranchman; single; nationality, Irishman.

Family history: Mother and one sister had tuberculosis; father an epileptic.

Past history: Could obtain no history of venereal disease; had typhoid when 21 years of age; had mumps when 32 years of age, just two years previous to history of the present trouble. For the last six years previous to operation he noticed a gradual enlargement of left testicle with occa-

sional neuralgic pain, which lasted a day or two and then subsided, leaving him free from all subjective symptoms except a slight dragging pain in the groin. Urinary findings were negative. Laboratory report on Wasserman, negative.

Physical examination: General appearance healthy; man five feet and ten inches; weight 150 pounds. All abdominal viscera, negative. The scrotum was slightly enlarged. There was a marked varicosity of the veins. On palpation, I found a tumor about the size of a goose egg, ovoid in shape, containing some fluid in the tunica vaginalis, through which I could palpate the tumor as one palpates the head of the fetus through the amniotic fluid. There was an area of softness, and others where it was nodular, dense, and hard.

Diagnosis: Malignant tumor of the testicle.

Operation: Patient prepared as for laparotomy. Incision was made beginning just below external ring and extending down over tumor. Scrotum opened up down to, but not through, the tunica vaginalis, this being carefully dissected out and removing all contents through opening. The tunica was then opened, the bloody fluid allowed to escape, and the tumor again carefully examined, when we found no healthy tissue, and so did a complete removal, dissecting the whole cord up to the external ring and then applying the heavy pile-clamps, crushing all the tissues together. (This was done for a twofold purpose: first, to prevent hemorrhage; and, second, to prevent pain from the nerves, as crushing has been proven to do). A catgut was then applied around the crushed parts and then stitched lightly to fascia at the area of the external ring. The scrotal tissue was carefully examined, and all redundant tissue removed. A few interrupted catgut sutures were inserted in the fascia and the skin closed by horse-hair. A cigarette drain was inserted and left for the first three days, then removed.

Laboratory report gave carcinoma.

Recovery, very uneventful.

At present writing, ten months later, the patient is in good health.

Case 2.—Patient, Mr. H., Englishman; aged 74; married; occupation, drayman.

Family history: Negative except for congenital inguinal hernia, which the father and two brothers had.

Past history: Suffered from double inguinal hernia since birth, on the right side the opening being large enough to allow intestines to enter scrotum. In 1900 he was kicked by a horse on the right testicle and was told by the attending physician that it was bursted. Was sick four weeks before resuming work, although the testicle was always sore and much larger than the left. For two weeks previous to my first seeing him, he had noticed the testicle gradually enlarging and causing pain and nausea and vomiting. The nausea and vomiting were probably due to the hernia, for he had made no effort to reduce it, and he informed me that the hernia had been down all the time for the past two years, for he never wore a truss.

Subjective symptoms: Pain constant for two months previous; bowels, constipated; bloating of abdomen; appetite, poor; heart, slow and irregular; emotional disturbances; was highly nervous; urine, negative.

Examination: General appearance, emaciated; abdomen, tender; scrotum, enlarged to about three times its normal size, and what space was not filled with tumor was occupied by intestines.

After considerable effort I was able to reduce the hernia and then examine the tumor. I was again confronted with a hydrocele which I aspirated, drawing off ten ounces of fluid. I could then palpate a tumor about the size of an orange, which was hard and dense, cut rough in contour. I put the patient to bed and kept him on a light diet for a week, but the pain still persisted, and although on account of the age of the patient and his enfeebled condition, I felt I was flirting with the undertaker, I still knew something must be done, so, after informing him of his condition and he wanting the operation, I proceeded as follows:

Under ether anethesia I made my incision the same as in the previous case, and after dissecting parts loose from scrotum I opened up as far as the internal ring and removed the cord, the same as in the preceding operation, only closing the same as I would for hernia, except that I did not have the cord to protect and could make a complete closure. I might say that at this stage of the game, seeing that my old friend was doing well, I started my surgical partner, Dr. Hollister, to work on the left hernia when I was closing up the right, and by the time I had finished my side of the work, Dr. Hallister was ready to close up the left, which we did rapidly. This man made an uneventful recovery and is today back at his work. I examined him a few days ago and found him all right.

Report from the laboratory: From the tissue you send me, I think perhaps it was a sarcoma.

I treated this man two years and only by accident did I discover what was really the cause of his trouble, for he had shielded the real cause until he was down on his back, and I had been treating him for indigestion. He had always squirmed out of an examination by saying the only trouble was in his stomach.

Case 3.—Patient, Mr. Y.; nationality, American; age, 64; color, white; occupation, police judge.

Family history, negative.

Past history: Suffered an injury to left testicle, which left it sore and painful for about a year. There was then an elapse of about four years when he suffered very little, and there was no perceptible change in the tumor. For the last year he had noticed a gradual enlargement and also some tenderness, but the thing that brought him to me was the loss of sexual power. Subjective symptoms were the tenderness of the testicle, melancholia, loss of sleep, appetite poor, and much worry over the tumor. The urine was negative; blood-findings revealed nothing; Wassermann reaction was not made; general appearance, poor.

On examination, I found a large tumor mass about the size of an extra large cocoanut. On account of the hydrocele I was unable to outline the tumor proper. By aspiration I drew off about fourteen ounces of fluid, and was then able to palpate a hard nodular mass, which seemed to contain some fluid in the center. I again inserted the needle into the center of the mass and was able to withdraw a bloody fluid which some authors state is typical of sarcoma, although in the previous case the laboratory report was carcinoma.

After much persuasion I was able to have him submit to an operation, which he did on July 30th. The preparation and incision were the same as in previous cases. On dissecting the tumor loose from the scrotum I found I had a large hard mass about the size of a base-ball, a hardened and thickened wall with a bloody pultaceous mass in the center. The parenchyma was entirely degenerated. The removal was the same as in the previous cases, except with the contents of the cord, and in this I ligated each structure separately and did not crush the stumps.

Recovery was uneventful.

Laboratory report gave sarcoma.

After the operation I put him on tonics, but there has been no return to the erectile power.

Case 4.—Mr. M.; age, 50; Irish; occupation, teacher; single.

Family history, negative.

Past history: Removal of left testicle two years previous for sarcoma. History of present trouble dates back nine weeks previous to when he noticed the organ gradually enlarging and giving him intense pain. He was also suffering greatly from nervous symptoms.

Laboratory findings were negative. All abdominal viscera were in healthy condition.

On examination, I found a hard, dense, oval mass about two inches in diameter, containing no fluid, and very sensitive to touch.

Diagnosis, sarcoma.

On the following week he consented to have the operation performed, which I did as in Case 2. Owing to the condition of the cord, I dissected out up to the internal ring.

Recovery was uneventful.

Operation was performed Oct. 1, 1911, and to date there is no sign of recurrence.

Laboratory report gave sarcoma.

Case 5.—Mr. M.; age, 61; nationality, American; occupation, farmer; widower; color, white.

Family history, negative.

Past history: Had suffered for years with pain in groin and limbs and joint. Could obtain no history of venereal disease, and children are healthy and strong, so did not consider the K. I. or the Wasserman test. Pain in scrotum, groin, limbs and foot; heart, fast and irregular; suffered at times; worked; gastric pains, which were relieved by eating; painful and frequent urination; highly emotional and excitable, other times going to sleep while sitting and waiting in my office.

Urinary findings: Reaction, acid; no albumin; no sugar; specific gravity, 1008; indican present; general appearance, emaciated.

On physical examination, I found a large hydrocele of the left testicle, and a very much enlarged testicle on palpation, which he informed me had enlarged greatly in the preceding three weeks, so I advised the removal of the offender. He readily submitted to an operation, which I performed on December 18th, taking the same precaution as in the other cases. I dissected out the tunica vaginalis and did the E. Wallis Andrews Battle operation. While I found the testicle enlarged, still it seemed to contain normal tissue, so I left it, being satisfied to attend to the hydrocele in a proper way. He suffered greatly from retention of urine, abdominal pains, and irregu-

larity of heart-action for about one week after the operation, and then he confessed that he had had a luetic infection about six years previously. I put him on mercury and K. I., and he quickly responded to the treatment and made an uneventful recovery, the testicle resuming about its normal size.

This was a case of mistaken diagnosis, but on the strength of doing the hydrocele work I felt justifiable in operating.

In closing I wish to state that every tumor should be treated as syphilis until it can prove an alibi, unless the treatment or loss of time would be hazardous to the patient's recovery. Patients should be more carefully questioned along this line. Hydroceles should not be tapped at intervals, but should have the radical operation. Every tumor should be removed as early as possible, using the same caution as in case of tumors of the breast.

DISCUSSION

Dr. G. G. Cottam (Sioux Falls): I was much interested in the feature the doctor mentioned in regard to the psychological symptoms of diseases of the testicle. Sometimes the conditions are not always chargeable to disease. I remember one case of a man who, thinking he had testicular disease from an imaginary cause, committed suicide. I saw a case of hydrocele a few years ago in which the man had manic-depressive symptoms which cleared up when his hydrocele was cured.

I operated a week or two ago on a patient with undescended testicle for which the man had worn a truss and pad and they had compressed that testicle for twenty years, and he with his false modesty had not consulted a physician about it, but simply bought a truss of the size he wanted. When he came to me he came as a hernia case, and did not know that there was a testicle in there at all. He not only suffered a great deal of pain and distress, but there was a marked degree of melancholia present which has already shown signs of clearing up.

Dr. F. M. Bleszek (Tabor): I had an experience along the lines of removal of the testicle which impressed me with reference to securing from one of these people whom I operated on definite permission to do such an operation as was necessary. I am very glad that the doctor in his paper mentioned the psychological effect which this removal sometimes has. In a case of undescended testicle which came into my hands and which I referred to Dr. Spaulding, of Luverne, and upon which we operated, we found, first, that there was a hernia, which was concealed, and we also found an undescended testicle atrophied beyond any possible function.

After we had made the examination and he had come out of the anesthetic we talked to this young man and explained the situation to him, and he finally consented to let us go ahead and do what we saw fit. The testicle was removed, and the hernia was repaired. That young fellow lived in my town, and I tell you the boy was nearly crazy, and I had great difficulty in preventing him from doing himself harm—committing suicide, as Dr. Cottam has mentioned.

I do not believe that the general practitioner at all times makes the thorough examination of these cases that he should. I wish to emphasize the one point that he should not undertake to do any radical operation of these cases without having a definite understanding with his patient and having his consent to do the work. I should never consent to remove a testicle without having the patient's consent and without any strings attached to it.

Dr. Kenney (Essayist): I hoped the discussion would show the necessity of an early and radical operation in all diseases of a surgical nature affecting the testicle or cord, for it has been my observation, as well as the observation of men with long and large clinical experience, that these cases should receive prompt and surgical treatment at their incipiency.

ECLAMPSIA: ITS CAUSE AND TREATMENT*

By Wm. Reid, M. D.

DEERWOOD, MINN.

It is not my purpose to take up your time in citing the various facts and phenomena in connection with this disease, nor to discuss the various theories that have been advanced regarding its causation; but to place before you for consideration certain pathophysiological conditions which, I believe, will account for the clinical manifestations or which would at least appear to be a factor in its etiology. My study of the disease was first stimulated by the occurrence of two very interesting cases in my practice:

Case 1.—This case occurred in September, 1905. The patient was primipara, and was delivered of a healthy child without difficulty or accident about twelve hours previous to my call. Four or five convulsions had occurred before my arrival, and her condition became rapidly worse. As one convulsion rapidly followed another her state was one of almost continuous rigidity; urine, albuminous and suppressed. As the respirations became shallow, artificial respiration was restorted to. Chloroform was employed to control the spasms, but without avail; purgatives were also administered. As the patient resided in the country, immediate counsel could not be obtained. I determined to try venesection and

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opened the radial vein, which appeared to be most prominent, and drew at least thirty ounces of blood. To my astonishment and delight the severe tetanic-like spasms ceased at once, and the patient went into a calm and quiet sleep, which lasted for three hours. She awoke to semiconsciousness and had a slight spasm lasting only a few seconds; a second a half hour later, and a third one hour later, which proved to be the last; and she awoke slowly to full consciousness in the next four or five days, during which time the urine became free. She continued weak and exhausted, and had sweatings and chill followed by fever; temp., 104°, followed rapidly by pain and tension in left iliac region, extending down the left groin and thigh, with tenderness along the femoral vein throughout its whole extent. This complication, which was easily recognized as thrombophlebitis, resulted in complete recovery in about nine weeks.

This patient stated that all through her pregnancy she could trace the beginning and duration of what would have been her menstrual periods by the onset, periodically, of pelvic and abdominal fullness, which was at times painful and in all respects similar to those experienced before her pregnancy at each period and also very similar to the pains and feelings experienced in her left side and leg following parturition and which ushered in the attack of thrombophlebitis. I therefore concluded from these manifestations that thrombosis existed high into the pelvic and abdominal veins, and also that a tendency to this very condition existed all through her pregnancy, that is, an undue accumulation of blood in these veins or, in other words, neither the fetal demands nor the maternal return circulation was enabled to dispose of the volume of blood which collected there, so that a condition of partial stasis was set up in the uterine and neighboring vessels, which was a condition favorable and necessary to the intravascular clotting of blood or thrombosis.

Now, it has been shown by investigators, notably Schmorl and Harbitz, and attested by all leading pathologists, that the most constant postmortem evidence of eclampsia is the presence, in all the organs of the body and more particularly in the brain, liver, and kidneys, of minute microscopic coalgulæ or thrombi leading to infarction and acute fatty degeneration. The blood therefore is in this disease in a general thrombotic condition.

Case 2.—This patient was the mother of five children, and never developed eclampsia during pregnancy or parturition, but was subject to eclamptic seizures at each monthly period. These seizures differed in no respects from the genuine eclamptic spasms, but were short-lived, although very severe, and left the patient exhausted and suffering from an intense headache and pain at the pit of the stomach. These spasms occurred generally just before the flow, but often followed the period. They covered a period altogether of nearly twelve years of the patient's life. She is now in later middle life, and is regular monthly. During the last two years she has suffered little from these attacks, and they are apparently passing away.

If morphia or antispasmodics were administered just before the flow so that she were relieved promptly, no spasms occurred or very lightly. There was never albumin in her urine, but she suffered constantly from headache, and pain in the stomach. She was curetted at one time with great benefit for a long period. I attended her two years ago when an abortion occurred at the fourth month. On this occasion the patient had a very severe convulsion, which occurred just after the uterus was emptied.

Now, in Case 2 I saw the same phenomenon as in Case 1, although in the non-pregnant. It is true, she had been pregnant, and there undoubtedly was left some remains of decidual membrane, and we see it occurring at each monthly period when the uterine vessels were gorged with blood. What is there, therefore, common to the two cases but a condition of stasis of blood in the uterine vessels? In this case, if the blood came promptly, no convulsions occurred, showing that retardation was an essential factor in the case. Without retardation there is no thrombosis, is a principle that has been established by experiment. Jackowsky injected bacteria and toxines into the veins of rabbits and guinea-pigs, but no thrombosis followed unless there was also slowing of the blood-stream by artificial constriction.

When a woman becomes pregnant the blood which comes to the uterine walls is destined to nourish a new being. Nature, in nearly all cases, furnishes the required amount according to the law of supply and demand, and a perfect balance is maintained; but if, for any reason, the supply furnished by the maternal vessels is in excess of that which is demanded or which can be used, there is congestion, or accumulation, stasis, and other factors being present there is thrombosis and a general viscous or coagulable condition brought about, leading, in turn, to irritation of

cerebral centers, and deposit of thrombi in all the organs and eclampsia.

Retardation in the sinuses is brought about by three causes: (1) a weak right-sided circulation; (2) changes in the placenta-maternal relations; (3) predisposition to anatomically large sinuses.

A weak right heart might play a part in those cases by its inability to promptly drain the venous blood from the pelvic veins.

Of the second cause, I shall briefly call your attention to certain phases in the developement of the placenta and its connections with the decidua or maternal contribution to the physiological connections between mother and child. Up to the end of the third month of pregnancy, the chorionic villi have not yet come into intimate relations with the decidual membrane; the placenta is in the formative stage; there is lack of adjustment between maternal supply and fetal demands; and in these months we see many cases of so-called toxemia, evidenced by vomiting, nausea, headache, and, rarely, eclampsia. In the middle months of pregnancy, from the fourth to the end of the seventh, we have the complete formation of placenta, and a perfect balance exists between supply and demand. Our toxemic cases generally clear up in those months, and few cases of eclampsia occur. After the seventh month we have another period wherein the circulation becomes disturbed.

The placenta in this period shows retrograde changes, which advance steadily up to full term. "The villi of the chorion become less engorged with blood; Langhan's layer of cells disappears and becomes replaced by a stratum of canalized fibrin; the syncytial layer undergoes a thinning process and here and there becomes denuded, so that the layer of canalized fibrin comes in contact with the maternal blood, causing coagulation and setting up a local thrombosis; giant cells, in large numbers, wander into the deeper layers of the decidua and seem to press on the walls of the intervillous spaces so as to lessen their lumen." (Williams, 2nd edition, p. 132.)

The placental circulation is therefore seen to slow down in the last two months of pregnancy, and degenerative changes are going on slowly, preparing for the time when connection between mother and child shall cease, and we have again a condition of stagnation or retardation of maternal blood, or, in other words, there has been a gradual "damming up" process going on in the uterine vessels, and as soon as parturition begins the contractions of the uterus, incident thereto, cause a very rapid damming back of blood. There is a sudden interruption of a process that has determined a special volume of maternal blood, for a special purpose, to the walls of the uterus for a period of nine months. This blood is now thrown back upon the maternal organism faster than the return circulation can carry it away, and again a more pronounced condition of retardation and stasis, leading to the formation of thrombi and the eclamptic state, is induced.

Thus it is that we may have eclampsia occurring at any time after the seventh month, and most frequently at or near parturition.

Of the third cause of retardation: it is not likely that this condition would ever exist were it not for the existence of *anatomically large sinuses*, which cause a very sluggish movement of blood in the maternal vessels and intervillous spaces; otherwise we should see eclampsia occurring constantly in pregnancy and parturition.

I do not say that the foregoing conditions alone are sufficient to determine the eclamptic state, for it appears, from the general knowledge which we possess regarding the intravascular clotting of blood, that there must be some other etiological factor acting in conjunction therewith. It may be the vagrant or giant cells referred to; it may be a deciduitis causing an exudate from the intimal layer of cells lining the vessels; or, what is more feasible, it may be that the initiatory step in the thrombotic process is taken at the periphery of the villi where the syncytial layer becomes denuded, bringing the recently formed fibrinous transformation of Langhan's cells into contact with the maternal blood.

Our theory, therefore, may be summed up briefly in the following words: "Undue accumulation of blood in the maternal vessels leads to retardation and stasis, producing, when it is acted upon by other agents probably derived from the uterine walls, a thrombotic condition, which precipitates the eclamptic state with its various manifestations."

TREATMENT

Whenever the practitioner becomes aware of the existence of any of the evidences of toxemia, such as vomiting, nausea, or the so-called pre-eclamptic signs,—headache, pain in the stomach, albuminous urine, blurred vision, and high blood-pressure, he should first adopt the prophylactic treatment,—milk diet, nervine sedatives, as bromides and chloral, purgatives and tonics, as required by the conditions of the case. Slow delivery, if there is time and the child in the viable period,—otherwise a venesection may first be

tried, abstracting from 600 to 1000 c.c. If the pre-eclamptic symptoms are not urgent yet unmistakably point to coming serious conditions, a smaller quantity of blood may be drawn, say 300 c.c., and, according to Potocki, immediate relief follows the abstraction of blood in these cases, at least no harm can come from this measure when restorted to before delivery, and it is very important from a moral point of view to do all in our power to carry the pregnancy along till the eighth month.

If, after all these measures have been tried, the patient is still in danger, the uterus should be emptied, slowly if there is time, rapidly by vaginal Cesarean section if the case is urgent. Lichenstein inveighs against too great a hurry in emptying the uterus, as fully 20 per cent of the cases occur post-partum, and he claims that the only advantage is to allow an abstraction of blood from the uterus, and to this fact alone he attributes the large percentage of recoveries following delivery, a theory absolutely in accord with our theory above as to the cause of eclampsia.

If eclampsia occur after delivery, as it does in 20 per cent of all cases, then a free venesection, with or without salt infusion, should be done, and from 600 to 1,000 c.c. of blood abstracted.

The use of morphia and chloroform would seem to be contra-indicated; and the hot-air bath, to cause free perspiration, is neither scientific nor useful, as it tends to lessen the liquidity of the blood and thus to aggravate the disease.

Of the value of free venesection no one can doubt who has once resorted to it. The change which comes over the recently moribund and struggling patient is truly marvelous to behold; the face assumes a natural expression; the eyes, fixed and meaningless, become mobile and intelligent; the spasms cease; the respirations become regular, and easy; and the patient sinks into a calm sleep.

Zweifel recently reported a series of 71 cases treated by venesection, in 57 of which convulsions ceased immediately. He quotes St. Blaise, who cites 14 cases without a death by this method. Chirie reports 1 death in a series of 25 cases by the same method. Englemann, in 1907, reported a case in which 175 convulsions occurred in all, but the patient recovered after venesection had been done for the third time, and when all hopes for recovery were given up.

Favorable reports of this method are coming recently from different parts of this country. Williams says: "I have personally bled, with most excellent results, a number of patients who were thin and weak. This experiment would seem to show that venesection is indicated in all cases in which delivery of the child is not followed by a cessation of convulsions, no matter what the condition of the pulse." F. J. Plondke, of St. Paul, reported a series of three desperate cases treated by venesection and infusion of salt solution, with recovery in each case. Doubtless such reports could be duplicated from many other points if a full report could be obtained, and the writer confidently looks forward to the adoption of this method of treatment by all practitioners in the near future. I do not mean to say for a moment that other therapeutic measures should be discarded, but they should be used intelligently in a combined method with venesection according to the exigencies of the case.

I would suggest that in severe and obstinate cases after one venesection shall have been tried without success, and all other means having also been tried, an opening be made in one of the pelvic or uterine veins and blood abstracted therefrom. This would mean a major operation and should be undertaken only by a competent surgeon, the object being to draw the blood from the fountain and origin of the trouble at close range by getting near the uterine vessels; *and the writer predicts that the surgeon who first evolves a safe method of doing this operation will have accomplished the last step in the treatment of eclampsia.*

VAGINAL CESAREAN SECTION IN CERTAIN CASES OF ECLAMPSIA, PLACENTA PREVIA, PERNICIOUS VOMITING, AND IN HEMORRHAGE DUE TO PREMATURE SEPARATION OF THE PLACENTA*

By H. C. Cooney, M. D.

PRINCETON, MINN.

There are certain abnormal obstetrical conditions necessitating the speedy delivery of the pregnant woman, and when circumstances are favorable for vaginal delivery, when the true conjugate is over three and one-half inches, anterior vaginal hysterotomy has a field of utility that seems to have been somewhat overlooked, although the operation dates back to 1896, when Acconoci, and in the same year Dährrsen, introduced it, and to them belongs the credit.

The indications for this operation may be present in any case of eclampsia, placenta previa, pernicious vomiting where other treatment has failed, and in hemorrhage due to premature separation of the placenta. In any of the conditions named, where, in addition, the condition of the cervix is rigid and will dilate slowly and with difficulty by means of Bossi's dilator or the elastic bags, this procedure should be selected, for the reason that this type of patient is usually in a more or less exhausted condition, or in eclamptic coma and not a good subject for prolonged trauma and anesthesia. By this operation the uterus can be emptied in a few minutes, even though gestation is at full term, which is an element of the greatest importance in dealing with this class of patients.

The performance of vaginal hysterotomy presupposes an ability on the part of the operator to do aseptic surgery and to be familiar with the surgical anatomy of the field of operation and its technique, which is simple.

This operation, let it be understood, is not indicated when the cervix is soft and dilates readily, nor is it then to be advised.

The steps of the operation are the preparation of the vagina as for vaginal hysterectomy; and the instruments are those necessary for that operation, with obstetrical forceps in addition. The anterior utero-vaginal mucous membrane is incised and the bladder pushed upward and freed from the cervix, completely, anteriorly and laterally. From the center of the cervical incision a longitudinal incision is made extending outward toward the meatus, and the bladder is further freed from the anterior vaginal wall. The bladder is now held up by a broad retractor, the peritoneal plica is to be seen and felt, but not opened. The anterior uterine wall is divided up to the peritoneal attachment in the median line, and the membranes now present are ruptured, and all instruments are removed from the vagina. Version of forceps extraction, preferably the latter, is made at once, but with care. The placenta is delivered immediately after the fetus is extracted and the uterine cavity is packed with five per cent iodoform gauze. Ergotole has been given hypodermically at the beginning of the operation.

In a primipara with a small vagina, a vagino-perineal incision may be necessary in order to increase the working field. This incision divides the vagina, the levator ani, and the constrictor cunni. All spurting vessels are tied at once. This last incision, if made, is sutured, after the uterine incision has been closed, with interrupted sutures of No. 3 chromic catgut. The vaginal incision is closed with the same suture material, and a small gauze drain inserted between the two central supracervical sutures for twenty-four hours. The vagina is lightly tamponed with sterile or bichloride gauze, and normal salt solution is given the patient and repeated as indicated afterwards. In twenty-four hours all gauze is removed.

That this is not arm-chair surgery, but an operation of great practical value in selected cases, I have proved to my own satisfaction in six instances. Three of these patients were operated upon for eclampsia, two for placenta previa, and one for pernicious vomiting with general toxemia at six and one-half months. This covers my experience with this operation, which, while not extensive, has been so far satisfactory.

Of the three women who were operated upon for eclampsia, one was advanced seven months in gestation, and in labor; both of the other two were without pains. All were in coma; one so profound that no anesthetic was given. Ether

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

and morphia were used in two cases. All of the mothers and two of the infants survive. The seven months' fetus was asphyxiated at delivery. There were two patients with marginal placenta previa advanced to eight and eight and one-half months, respectively. Both had suffered repeated hemorrhages and were operated upon by this route, one during the interval between bleedings, and one during a rather severe hemorrhage, the latter being almost exsanguinated when seen, but making a tedious convalescence complicated by a left femoral phlebitis. Both mothers and both infants survived. The remaining patient of this group who was operated upon by this method was a much-exhausted woman. The operation was for the relief of toxemia of pregnancy with long-continued and persistent emesis. After failure of the usual methods of treatment, including drugs, suggestion, the rest-cure, rectal feeding, and Christian Science, she recovered from the operation without incident. Previous experience in similar cases with Bossi's dilator, which, even in expert hands, I regard as a dangerous instrument, has induced me to discard it, together with the Champtier de Ribes bag, when the condition of the pregnant woman is such as in the cases whose clinical histories I have briefly outlined in this paper.

DISCUSSION

Dr. A. W. Abbott (Minneapolis): There is a certain class of cases in which this operation, I believe, is especially applicable, and those are the ones that have been mauled around by midwives, or that have been neglected until they have become septic.

As to its value in the vomiting of pregnancy: It is not frequently demanded.

There is only one suggestion I would make in reference to the technic of the operation, and that is, that one need not be afraid to cut the uterus. It is better than to let it tear, even if it is necessary to go through the peritoneum.

Dr. B. W. Kelly (Aitkin): I would like to add a word or two along the line of Dr. Anderson's suggestion about the necessity for rapid delivery. In a series of several hundred cases, statistics of which were obtained, it was found, contrary to the general belief, that the mortality in those cases where forced delivery was brought about was practically the same as that in the cases in which forced delivery had not been performed, so that it is not so essential. It seems to me that the principal benefit, aside from that of the child, to be obtained from rapid delivery or forced delivery, is the blood-flow from the mother, and we obtain in that way practically the same results that we would by venesection.

Dr. Cooney (Closing): In the class of cases I have written about the type is distinctly stated, namely, the slowly dilating cervix. These are the only cases I would reserve this operation for. If we take the cases in which we can proceed with manual dilatation of the cervix, then this operation is not applicable. Neither can you effect dilatation of the cervix as rapidly with the Bossi instrument, so the operation described is essentially for the rigid, uneffaced, slowly dilating cervix, which is apt to rupture.

As to the time it takes to empty the uterus: This varies from twelve to fifteen minutes after the vagina has been sterilized.

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PUBLIC HEALTH AND PUBLIC EDUCATION

The accompaning tables show how the legislature felt toward the public from at least two points of view. It is well known that Minnesota is endowed with an enormous school fund, founded by the foresight of former Governor Ramsey, when he set aside a large tract of school lands. This fund, however, is beyond the picking of the legislature, and the appropriation for school purposes, in which the University takes no part, is out of the revenue funds of the state. Just so is the appropriation for public health. The legislator thinks he knows what education means, but the average member of that biennial body is not concerned in the health of school children. The schools throughout the state thus receive a tremendous uplift, while public health receives a slap.

APPROPRIATIONS FOR EDUCATION

	1912	1913	1914	1915
Aid for High Schools	$156,200	$160,000		
Aid for Graded Schools	58,300	75,300	$706,500	$1,064,500
Agricultural and Industrial Training	60,000	77,000		
	50,00	75,000		
Aid for Common Schools	315,000	365,000	751,975	898,475
Aid for Consolidated Schools	25,000	75,000	50,000	50,000
	$664,500	$827,300	$1,508,475	$2,012,975

APPROPRIATIONS FOR EDUCATION AND HEALTH

	1912	1913	1914	1915
EDUCATION	$669,000	$827,000	$1,507,475	$2,012,976
Rate per capita	33c	41c	75c	100c
Rate per pupil	$1,67	$2.07	$3.78	$5.03
HEALTH	$62,500	$67,000	$66,500	$66,500
Rate per capita	3.2c	3.7c	3.3c	3.3c

It will be readily seen that the last legislature appropriated $500 less for public health work for the next two years than during the previous two years. A committee of the State Board of Health appeared before the appropriations committee and asked for an increase of about $15,000, in order that the departments of health could be carried on without embarrassment, but apparently no impression was made upon the committee. The committee, however, did make a change: they transferred $2,500 from the general fund to the epidemiological division and ignored the necessity of providing for vital statistics.

That division originally had $5,000 and needed $12,000, but no increase was allowed. The laboratory division suffered from a misappropriation, and is now obliged to reduce its work. In order to keep within its allowance it may be necessary to drop one of its branch laboratories, unless the city comes to its relief.

As the general fund of the State Board is reduced, the campaign of education must cease, and the valuable services of Dr. Hoag, who has done so much for public health education, must be discontinued.

So also the special legal agent of the Board, who looked after delinquent reports concerning vital statistics, must fall by the way.

Evidently public health will have to wait until its real worth sinks into the minds of the appropriations committee.

It is very difficult to understand how anyone cannot see the necessity of looking after the health of the child before its education begins, but the ways of the legislature are past all understanding unless we assume that personal and local interests are paramount to public welfare.

An effort has been made to unify the work of the State Board of Health and of the Medical Department of the State University and establish a state public health department, the University and State Board to furnish the laboratory facilities and the State Board to add to the clinical side, but the salary funds of the University will hardly permit this arrangement.

If the scheme can be accomplished, Minnesota will be able to confer a degree of Doctor of Public Health that would be worthy of the name.

QUACK MEDICAL SHOPS

It stirs one with indignation to read of the methods of the charlatan as illustrated by an account in the Minneapolis Evening Journal of a suit against the "Dr. Nelson Co.," by John Bren, a farmer who lives near Hopkins, Minn.

It has been commonly known in Minneapolis that the real Dr. Nelson who ran the establishment that bears his name has been dead for several years. The "Dr. Nelson Co."—the "Co."—is now under the management of Nels Wedergren, who is accused of practising without a license. A Dr. A. C. Moorhead and a Dr. Thomas A. Bailey are connected with the firm and evidently the medical side of the quack institution is under their guidance. A Mr. J. S. Brown, formerly a manager of the concern, testified that he invested $4,000 in the firm in 1907, and when he left in April, 1910, he drew $8,000 as his share, besides a salary of $150 per month. He also testified that Dr. Moorhead got $24,000 in the division of spoils and that the medicines that were doled out to all patients alike, whatever their ailment, was a liquid formed of colored water and tablets made principally of flour or chalk.

John Bren paid into the firm $500 in the three years and nine months that he played the rôle of victim.

John represents a small unit of a large army of men that keep such quack concerns in existence. The business methods exhibited by many charlatans require for their best results the payment of fees. The patient is usually given a quick, spectacular and impressive but cursory examination and then solemnly told that he has a chronic and perhaps incurable disease or that he will soon become insane unless he submits to treatment at once. The fright and the pressure that is brought to bear on the victims is followed by an initial cash payment, usually all the money the man has, or his note is taken for a goodly sum. He is coddled, filled with spurious or fraudulent nostrums and kept on the anxious seat as long as possible and when his money is exhausted he is promptly dropped. New victims are so numerous that the business always pays a good income and the wonder is that the people do not awaken to the deception and the further wonder is that the local authorities, police and county attorney do not make an investigation into this, one of the greatest frauds ever perpetrated on people who should be protected. Minor offenses are promptly punished, but it is very seldom that quack shops are molested. This is due in part to the reluctance to complain on the part of the one defrauded and in part to the absolute indifference of the prosecution officers. The publication of such a trial as outlined above by a big daily paper will reach and save a few, but the greater number of suckers will still flock to the quack and cheerfully give up their savings of years for the supreme privilege of being humbugged.

What can one say of physicians who are presumably graduates of reputable medical schools? Did they try legitimate medicine and fail, or were they impatient for quick returns, or are they from the ground up unscrupulous?

Quack medical practice means easy money and the temptation to enter that field appeals to a certain type of man—just as quackery in other lines finds men who are willing to take a chance. It is to be hoped that the Nelson Co. will be dissolved and the State Medical Institute will some day get its quietus.

ARTERIOSCLEROSIS OF THE STOMACH

Dal Lago, in the March 1st number of *Reforma Medica*, Naples, abstracted in the *Journal of the A. M. A.*, April 19th, calls attention to a limited number of cases of sclerosis of the arteries of the stomach. The subject is an interesting one, for it may shed light on some of the hemorrhagic cases that may be confused with ordinary gastric-ulcer cases.

This condition of sclerosis may occur in the young who develop an early sclerosis, but it is usually found in those past middle life. The symptoms are those which are usually classed as dyspepsias, with flatulence, drowsiness, painful distention, relieved by belching of gas, nausea, and vomiting. The stomach-contents, when analysed, give no ulcer findings, and the appetite remains good. The symptoms usually clear up in a short time only to recur after another meal. These cases are frequently accompanied by gastralgia and other pains radiating over the trunk or under the shoulder-blades, but they continue only a few moments or are relieved by vomiting. In some cases the symptoms are suggestive of angina pectoris on account of the precordial pain.

The diagnostic sign, which helps clear the situation, is the discovery of arteriosclerosis elsewhere in the body with symptoms of circulatory disorders in other organs and also by the administration of bromine and strophanthus, drugs that are beneficial in arteriosclerosis of the stom-

ach, but have no valuable action in cases of ulcer.

Hemorrhages from eroded vessels may announce the presence of the disease. Fortunately, they occur at long intervals; sometimes may produce fatal results. A gastro-enterostomy may put an end to the symptoms by relieving the spasm of the pylorus and help restore the circulation in the stomach.

It is evident from the observations of Dal Lago that some cases that have passed through clinics as ordinary gastric or duodenal ulcers, may more profitably be diagnosed as diseases of the blood-vessels, *per se*, and appropriate treatment employed to improve the general arterial state, rather than the usual restricted medical and dietetic measures commonly given in simple ulcer cases. For arterial cases the various salts of lime and soda or the nitrites are not infrequently of great value. The elasticity of the vessel-wall is improved, and the salts commonly lacking in the blood-vessels or the blood-stream may be replaced in part. Unless the degeneration of the vessels is extreme, much can be accomplished for the good of the patient.

MISCELLANY

THE COMMISSION EVIL AS VIEWED BY THE FACULTY OF THE COLLEGE OF MEDICINE AND SURGERY OF THE UNIVERSITY OF MINNESOTA

We, the members of the Faculty of the Medical School of the University of Minnesota, regard the commission evil in all of its forms as the greatest danger which threatens the medical profession today. Its continuance and spread would result in a loss of ethical standards and so degrade our calling as to make it wholly undesirable as a career for men of the proper character and training.

This buying and selling of patients assumes a proprietorship which does not and cannot exist, is abhorrent to any right-minded physician, and must inevitably bring about a complete reversal of the true relation of the patient to the man he has learned to trust. The man who can and will pay the highest amount for patients referred to him will naturally receive the largest number, and the question of relative skill and ability is at once reduced to a minimum. No one who has had an opoprtunity to see anything of the practical workings of the commission evil can doubt that the patient suffers by it even more than the profession itself.

Commercialized medicine, medicine as a trade, is a degrading occupation, for the character of much of the work necessarily done is of such a nature as would make it impossible for men to undertake it unless they were inspired by altruistic and scientific enthusiasm and dominated by ideals such as have in the past been traditional in the profession of medicine.

It is the manifest duty of any practicing physician or surgeon to give or to secure for his patient the best medical service obtainable. For securing the service of another physician for his patient he should either demand no fee, as had long been the custom of our profession, or, if he deem a charge proper and necessary, such charge should be frankly and openly made and collected by him and by no other person. If the necessities of any given case require that a physician accompany a referred patient in his journey to the office of the consultant, or if without suggestion such referring physician is requested by the patient or his family to assist at any operation or special procedure, he should, as in the preceding instances, make his own proper charge and present his account entirely separate and apart from that of the fellow physician, specialist or otherwise, to whom the case has been referred for special operative or diagnostic procedure.

In any case it is both unnecessary and improper that there should be any division of fees between physicians rendering service to any individual or family; and all accounts for service rendered should be individually kept and presented. Under no circumstances should any payment be made, secretly or openly, by the physician or surgeon to whom a case is referred when such transaction can in any way be considered as representing compensation covering a transfer or reference of a case; nor can reprobation be limited to the secret payment of a commisison without destroying that cardinal principle of service which should govern the relations between attending and consulting men and their clients.

It would appear from testimony available that underground commissions are paid and received which represent useless and unnecessary service on the part of the referring physician by means of which he is enabled to secure a considerable fee and yet avoid the appearance of openly receiving a commission. It is evident that in some instances this matter is so cleverly handled by

the unscrupulous consultant that the referring physician himself fails to see the real meaning and effect of this subterranean procedure.

No argument is advanced in justification of this disgraceful procedure save that of self-interest, and we believe that we reflect the sentiment of the great body of our profession in declaring ourselves unalterably opposed to a practice which would convert a noble profession into a trade more ignoble than that of the public scavenger.

THIRTY-SECOND ANNUAL MEETING OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Vermillion, South Dakota, May 27, 28, 29, 1913

SCIENTIFIC PROGRAM

President's Address—Dr. C. E. McCauley, Aberdeen.
Public Health Education—Dr. J. W. Parsons, Sioux Falls.
Discussion opened by Dr. H. R. Kenaston, Bonesteel.
Sex Education from the Standpoint of a Physician—Dr. R. P. Frink, Wagner.
Discussion opened by Dr. S. M. Hohf, of Yankton, and Dr. Jones, of Vermillion.
Refraction by the General Practitioner—Dr. J. A. Hohf, Tripp.
Discussion opened by Dr. H. J. G. Koobs, Scotland.

WEDNESDAY, MAY 28TH

A Case of Transposition of the Viscera—Dr. G. A. Laudman, Scotland.
Discussion opened by Dr. G. R. Albertson, Vermillion.
Membraneous Sore Throat (non-Diphtheritic)—Dr. S. A. Keller, Sioux Falls.
Discussion opened by Dr. H. I. King, Aberdeen, and Dr. A. H. Youngs, Pierre.
Tonsils—Some Pathological Reasons for Their Removal, with Demonstration of Microscopical Sections—Dr. L. N. Grosvenor, Huron.
Discussion opened by Dr. E. L. Putnam, Sioux Falls, and Dr. E. F. Reamer, Mitchell.

THURSDAY, MAY 29TH

Diagnosis of Gastric Ulcer—Dr. W. F. Bushnell, Elk Point.
Discussion opened by Dr. F. A. Spafford, Flandreau.
Vaccines and Modified Vaccines, with Report of a Case Treated with Vaccines and Phylacogens—Dr. A. H. Stoll, Brookings.
Discussion opened by Dr. C. A. Butler, Dell Rapids.
Hypopituitarism, with Report of Case—Dr. T. J. Billion, Sioux Falls.
Discussion opened by Dr. D. S. Kalayjian, Parker.
Vaccines in Surgical Practice—Dr. R. G. Stevens, Sioux Falls.
Discussion opened by Dr. G. G. Cottam, Sioux Falls.
Phenol Sulphonephthalein Test for Estimating Renal Function—Dr. G. S. Adams, Yankton, and Dr. E. Eyman, Yankton.
Discussion opened by Dr. T. F. Riggs, Pierre.
Post Operative Conditions—Dr. B. C. Murdy, Aberdeen.
Discussion opened by Dr. B. A. Bobb, Mitchell.
Demonstration to the Approaches to Long Bones on the Cadaver and Dissection of the Neck—Dr. G. R. Albertson, Vermillion.
Report of a Case of Tumor of Kidney, Macroscopical and Microscopical—Dr. Mortimer Herzberg, Vermillion.

Inspection of the University of South Dakota by the members of the Medical Association.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The Academy met at the Town and Country Club with thirty members and one guest present, April 2d.

Dr. A. W. Abbott reported a recent experience in conducting a confinement. He had placed his patient in the Sims position and watched the progress with the aid of a Sims speculum without making any digital examination. Later, when he found it necessary to deliver with forceps, he had continued the use of the speculum, and while the head was at the pelvic brim he had applied the forceps with the aid of the speculum, and more easily than he had ever done without it. He recommended the procedure highly.

Dr. J. E. Moore described an improved method of operating upon umbilical hernia, which he thinks quite satisfactory.

Dr. Dunsmoor exhibited a goiter which he removed from a boy twenty years of age. The gland was peculiar, in that it completely encircled the trachea and had caused great dyspnea.

He also showed a kidney removed from a boy fifteen years old, which in the fresh state showed, to a marked degree, the characteristic macroscopic appearance of tuberculosis. The cystoscope had shown the left ureter and kidney healthy, so he felt safe in removing the diseased one. After removing it, he had thrown into the ureter one drachm of carbolic acid and allowed it to remain.

Dr. Archibald MacLaren presented a patient and described the conditions as follows: A man, forty-five years of age, had received an injury to the forearm twelve years ago. A tumor had appeared upon the radius, and there was much pain in the upper portion. The *x*-ray showed that the tumor was confined to the medullary cavity. When opened to get a specimen of bone for examination, it was found that there was but a thin shell of bone and that the cavity was filled with a homogeneous mass made up of spiculæ. A Wassermann test was made and proved nega-

tive. An operation was performed and the cavity of the bone was scraped clean and filled with gauze. Resection was considered, but, owing to the long period since onset (twelve years) and the fact that the growth was confined to the medullary structure, the conservative procedure was considered safe. Since the operation (Jan. 27th) the man has been very comfortable.

Dr. J. C. Litzenberg then read a paper entitled, "Pituitrin in Obstetrics; a Warning Against Its Promiscuous Use." The paper was discussed by Drs. Leavitt, Carlaw, Moore, and Chilton.

Dr. J. Clark Stewart read a paper entitled, "The Malignancy of Giant-cell Sarcoma." This paper was discussed by Drs. Colvin and MacLaren. A. W. Dunning, M. D., Secretary.

THE STEARNS-BENTON SOCIETY

The Society met at St. Cloud on April 17th.

The following papers were read: "Early Operation for Gall-stones," by Dr. C. S. Sutton, St. Cloud; "Tuberculosis of the Spine," by Dr. J. H. Beaty, St. Cloud; "Preventable Diseases and General Sanitation," Dr. H. M. Bracken, St. Paul; and "City Sanitation," by Mayor P. J. Seberger. The last two papers were given in the evening at an open meeting.

The following officers were elected: President, Dr. Geo. E. Sherwood, Kimball; vice-president, Dr. C. S. Sutton, St. Cloud; secretary-treasurer, Dr. J. C. Boehm, St. Cloud; delegate, Dr. W. L. Beebe, St Cloud; alternate, Dr. Wm. Friesleben, Sauk Rapids.

The St. Cloud and Sauk Rapids members entertained the visiting members and guests at a six o'clock dinner at Hotel Fisher.

J. C. Boehm, M. D., Secretary.

THE CLAY-BECKER SOCIETY

The Society met at Fargo on April 28th.

Papers were read as follows: "Etiology of Acute and Subacute Rheumatism," by Dr. C. H. Patterson, Barnesville; "Tubercular Joint," by Dr. P. H. Burton, Fargo.

E. R. Barton, M. D., Secretary.

HENNEPIN COUNTY SOCIETY

A regular monthly meeting of the Society was held on May 5 with 61 present. In the absence of president and vice-president, Dr. C. A. Donaldson was called to the chair.

The Board of Censors reported favorably on the following applications for membership: Dr. Wm. C. Johnson, for associate membership; Dr. Angus Morrison, Dr. Hodge, Dr. S. V. Hobbs, Dr. A. H. Fagerstrom. All were elected to membership.

The report of the Board of Censors, recommending that Dr. Troy S. Miller be expelled from the Society for criminal practice, was adopted, and Dr. Miller's name was dropped from the rolls.

Dr. Miller had endeavored to obtain an injunction against the Society to prevent its acting upon his case before his trial in the District Court. The prayer for an injunction was denied. The investigation was made, and notwithstanding the fact that Dr. Miller was acquitted by the Court, the Society expelled him.

The program of the evening consisted of papers on "Perforated Appendicitis," by Dr. C. P. Nelson, and "Some Thyroid Problems," by Dr. J. Frank Corbett. Both papers were discussed at length. E. J. Huenekins, M. D., Secretary.

NEWS ITEMS

Dr. Jacob Karn, of Ortonville, died on March 16th, at La Mesa, Cal.

Dr. C. J. Bloom, of Mora, has gone to Vienna to do post-graduate work.

Dr. L. C. Ingram, of Red Wing, is doing post-graduate work in Philadelphia.

Dr. B. J. Branton, of Willmar, is planning to build a hospital, to cost about $20,000.

Mankato is soon to build a detention hospital for patients with contagious diseases.

Dr. P. D. Peabody, of Webster, S. D., will build a hospital in that city, to cost about $12,000.

Dr. E. R. Quain, of Bismarck, N. D., is spending some time at Johns Hopkins, attending clinics.

Dr. H. W. Law has sold his hospital and practice at Langdon, N. D., and will locate at Grand Forks, N. D.

Dr. George F. Mengerson has sold his practice at Welcome and will spend a year in post-graduate work in Chicago.

The American Medical Editors' Association will hold its annual meeting at the Hotel Radisson, Minneapolis, on June 16th.

Dr. P. C. Pilon, of Paynesville, is to build a new hospital, to cost about $20,000. Work will begin at once upon the structure.

Dr. C. M. Cannon, of St. Paul, is to have

charge of the new Lake Shore Sanitarium, established at White Bear for nervous cases.

Dr. A. A. Passer, of Minneapolis, has located at Olivia, taking the practice of Dr. G. O. Hymer, who has moved to Williston, N. D.

Dr. J. E. Rheim, of Duluth, will move to Grasston. Dr. Rheim has been associated for the past three years with Dr. Goldsworthy, of Duluth.

Dr. A. E. Amundsen has moved from Hendrick to New London and become associated with Dr. M. O. Oppegaard, of the latter place.

Dr. T. J. Maloney, who has been for some time an instructor in the N. Y. Polyclinic, has returned to St. Paul to resume practice in eye, ear, nose and throat work.

Dr. E. J. Hagan, of Williston, N. D., has formed a partnership with Dr. G. O. Hymer, formerly of Olivia, Minn. Dr. Hagan will soon leave for Europe to do post-graduate work.

Dr. Ray W. Whittier, a recent graduate of the State University, who spent a year in the University Hospital, has become associated with Dr. M. S. Nelson, of Mora.

Dr. B. J. Branton, of Willmar, will build a new hospital. Dr. J. R. Peterson, his former associate in hospital work, announces that he will move to Minneapolis

Dr. J. P. Widmeyer, who has been practicing a few months at Dunseith, N. D., has decided to return to Rolla, N. D., where he formerly practiced.

Dr. Frank P. Smith, of Meadow, S. D., died last month at the age of 61. Dr. Smith was a graduate of Bellevue. He practiced in Canton, S. D., from 1879 to 1910.

The Samaritan Hospital of Sioux Falls, S. D., formerly conducted by Drs. Stevens and Nessa, will hereafter be under the sole charge of Dr. Stevens. Dr. Nessa will do general practice.

Dr. Dewey Sutton, of Wolsey, S. D., was married on April 30th to Miss Grace Corley, of Huron, S. D. Mrs. Sutton was a graduate nurse of St. Barnabas Hospital.

Winner, one of the new towns of South Dakota, the first in the reservation but recently opened to settlers, has a new hospital. The Elks have a furnished room for the use of their own sick.

The Southern District Society of North Dakota met at La Moure, N. D., on April 29th. D. H. W. Barbour, of Edgeley, read a paper, "The Sterilization of Catgut," and a number of reports of cases were made. A banquet followed the meeting.

The annual report of the State University Hospital will be issued in a few days. It will contain matter of interest to Minnesota physicians, and every physician in the state should have a copy.

Dr. Troy S. Miller has been expelled from the Hennepin County Medical Society for unprofessional conduct. Dr. Miller was recently acquitted in the District Court on a charge of performing an illegal operation.

Dr. J. Harris Russell, of Cascade, Mont., died last month at the age of 60. A patient, a nurse, and Dr. Russell were suddenly attacked by a mysterious disease in Dr. Russell's hospital. The two former recovered, but Dr. Russell succumbed.

Dr. Frank J. King, of St. Thomas, N. D., died last month at the age of 49. Dr. King was treasurer of the North Dakota State Medical Association, and was prominent in the medical work of the state. He had done post-graduate work in America and Europe.

The twenty-sixth annual meeting of the North Dakota State Medical Association was held at Minot, N. D., last week. Dr. John W. Dodson, of Rush, gave an address before the Association and the public on "Recent Advances in Our Warfare Against Infectious Diseases."

Dr. Henry B. Favill, Professor of Medicine, Rush Medical College, lectured on April 29th in the University Chapel. Dr. Favill asserted that the medical profession made more progress in the last 30 years than in the previous 3,000 years, largely because of the spread of hygiene and sanitation.

The American College of Surgeons was organized in Washington, D. C., on May 5th. Its purpose is to raise the general character of surgery in America, and, in so far as can be done, to fix a standard of surgery and frame a code of ethics. Dr. W. J. Mayo is one of the officials of the College.

Dr. J. McGurren, of Devils Lake, N. D., has been appointed superintendent of Public Health for North Dakota, thus becoming Secretary of the State Board of Health. Dr. McGurren succeeds an admirable official, Dr. J. Grassick, and we trust he will even excel the efficiency of his predecessor.

The Ramsey County Society will entertain the American Medical Association on June 19th, and

will take as many of their guests as possible by automobile from the various meeting-places. Both the Minneapolis, and also the country physicians who have autos in the city at that time, can help the St. Paul committee in this work, of which Dr. Archibald MacLaren has charge.

Among the interesting features of the scientific exhibits to be given at the Minneapolis meeting of the American Medical Association, will be a medicinal plant garden and a pharmacognosy plant laboratory presented by the staff of the College of Pharmacy of the University of Minnesota. These exhibits will be in charge of experts during the entire convention, and will be arranged in the Laboratory of Pharmacology, Room 201, Millard Hall. In the same room, exhibits of experimental work in the department of pharmacology and of instruments and apparatus devised in the department of physiology will also be placed.

About fifty of Dean F. F. Wesbrook's most intimate friends in the Medical Faculty of the State University tendered him a banquet on the evening of April 29th, at the Minneapolis Club. Ex-President Northrop was the toastmaster. President Vincent, Dr. Charles Lyman Greene, Dr. Richard Olding Beard, Dr. H. E. Robertson, and Dr. Harry P. Ritchie were the speakers. A beautiful silver tea service, with a number of odd pieces, was presented to Dr. Wesbrook, who expressed his appreciation of both the gift and the friends who tendered it. The alumni of the University also tendered Dr. Wesbrook a banquet early in the month at the Plaza, and members of the State Board of Health presented him a number of pieces of silver.

PHYSICIANS LICENSED AT THE APRIL (1913) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Nordley, Harry R. . . . . U. of Minn., 1912
Wilson, Clyde E. . . . . P. & S., Chicago, 1912
Overend, Kenneth V. . . . . Queen's U., Kingston, Ont., 1911
Heseltine, Verner G. . . . . Royal Col. of Surgeons, England, 1908
Bye, Richard O. . . . . U. of Minn., 1912

BY RECIPROCITY

Eakins, Frederick C. . . . . Western U., London, Ont., 1899
Lee, Wm. A. . . . . Northwestern, 1911
Aldes, Harry . . . . . U. of Ill., 1912
Fjelstad, Christian A. . . . . Rush, 1911
Lewis, Wm. H. . . . . Miami (Cincinnati), 1906
Sutherland, Harry N. . . . . Rush, 1912
Lee, John W. . . . . Hamline, 1908
Hanson, Henry V. . . . . P. & S., Chicago, 1912
Thomas, Gilbert J. . . . . Northwestern, 1908

FOR SALE.

The fixtures, instruments, and all equipment of the late Dr. A. O. Bjelland, at Mankato, Minn., must be sold this month. For particulars address, M. R. Coulter, D. D. S., Mankato, Minn.

OFFICE FOR RENT IN MINNEAPOLIS

Physician's office space in new Syndicate Building, Nicollet Ave. frontage; three rooms; reception room together with dentist. Call T.-S., Center 5693.

PHYSICIANS WANTED—LOCUM TENENS

Locum tenens wanted to care for a prosperous village practice of $3,000 during June, July and possibly August. Must answer immediately and be ready to begin work June 1st. Address M. W., care of this office.

PRACTICE FOR SALE

I offer my practice and drug stock for sale. Location, central Minnesota, in rich farming country, thickly settled; Germans; good pay. Inland village, five miles from station; no other physician here. Nearest competition is ten miles north, twelve miles south and nine miles east with unlimited territory west. Have done $3,500 a year; am going to the city. Address, St. Martin's Drug Store, Zion P. O., Minn.

ASSISTANT WANTED AT ONCE.

A recent graduate with hospital experience as assistant in busy general and hospital practice. One who speaks Norwegian preferred. Salary with rapid opportunity for advancement. Address B. W., care of this office.

PRACTICE FOR SALE

A cash practice running over $4,500 a year in a Minnesota growing town of 8,000, five fine public schools, one parochial school, churches, hospital, etc. Last 5 years paid me $20,000 in cash.

Above goes to the purchaser of my modern 9-room house, hardwood floors, hot-water heat, city water and sewer, electric and gas-lighted, roomy office, waiting-room, and toilet in connection. $2,500 cash; balance on easy terms; good reasons for moving. This is a special snap for a Catholic physician. Address B. C., care of this office.

POST-GRADUATE WORK IN EAR, NOSE AND THROAT

Do you want actual experience in ear, nose and throat work? Two physicians are wanted to work in the ear, nose and throat department of the St. Paul Free Dispensary. For particulars write Dr. A. C. Heath, Lowry Bldg., St. Paul, Minn.

FOR SALE

One McDonald leather upholstered physician's chair of high-grade quality; also one Globe nebulizer; both in splendid condition. Will sell both for $45.00. Address E. L. A., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF FEBRUARY, 1913

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1															
Albert Lea	4,500	6,192	2													1		
Alexandria	2,681	3,001	2	2														
Anoka	3,769	3,972	6															
Austin	5,474	6,960	6	1		1										1		
Barnesville	1,326	1,353	1													1		
Bemidji	2,183	5,099	6			2												
Benson	1,525	1,677	1			1												
Blue Earth	2,900	2,319	2															
Brainerd	7,524	8,526	11			1									1	1		
Breckenridge	1,282	1,840	4			1												2
Canby	1,100	1,528	3			1												
Cannon Falls	1,239	1,385	3			1												
Chaska	2,165	2,050	3															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	4			1												
Crookston	5,359	7,559	5															1
Dawson	962	1,318	1												1	1		
Detroit	2,060	2,807	3															
Duluth	52,968	78,466	72	10	2	10	1				1				2	1		8
East Grand Forks	2,077	2,533	*													3		
Ely	3,572	3,572	4			1												
Eveleth	2,752	7,036	6	1		1			1							1		
Fairmont	3,440	2,958	0															
Faribault	7,868	9,001	7															
Fergus Falls	6,072	6,887	5	1											1			1
Glencoe	1,788	1,788	0											1				
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	4			1												
Hutchinson	2,495	2,368	2															
International Falls		1,487	5															
Jordan	1,270	1,151	1											1			1	1
Lake City	3,142	3,142	3	1		1												
Le Sueur	1,937	1,755	2			1												
Little Falls	5,774	6,078	6	1												1		
Luverne	2,223	2,540	2			1												
Madison	1,336	1,811	4													1		
Mankato	10,559	10,365	11	1		3								1				
Marshall	2,088	2,152	3												1	1		
Melrose	2,591	2,591	1											1	1			
Minneapolis	202,718	301,408	334	34	5	52	4	5	5					1	8	20		15
Montevideo	2,146	3,056	7			2												
Montgomery	979	1,267	2													1		
Moorhead	3,730	4,840	9												1			
Morris	1,934	1,685	1	1														2
New Prague	1,228	1,554	1															
New Ulm	5,403	5,648	7													1		
Northfield	3,210	3,215	4															
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	4															
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	1			1												1
Red Wing	7,525	9,048	10			2										1		
Redwood Falls	1,661	1,666	2			1												
Renville	1,075	1,182	1															
Rochester	6,843	7,844	26	1	2	1					1					6		
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	3															
St. Cloud	8,663	10,600	7			4										1		
St. James	2,102	2,102	2	1													1	
St. Paul	163,632	214,744	218	18	3	24	4	1	2		2			2	10	19	2	9
St. Peter	4,302	4,176	5			1												1
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	3			1												
Sleepy Eye	2,046	2,247	2														1	
South St. Paul	2,322	4,510	7			1												1
Staples	1,504	2,558	3			2												
Stillwater	12,318	10,198	2	1														
Thief River Falls	1,819	3,174	1															
Tower	1,111	1,111	0															
Tracy	1,911	1,826	3			1												
Two Harbors	3,278	4,990	6											1			1	1
Virginia	2,962	10,473	7												1		1	
Wabasha	2,622	2,622	5													1		1
Warren	1,276	1,613	6			3												1
Waseca	3,103	3,054	4															1
Waterville	1,260	1,273	3	1														1
West St. Paul	1,830	2,660	2													1		1
Willmar	3,409	4,135	3	1	1													
Winona	19,714	18,583	27	3											1	3		1
Winthrop	813	1,043	1												1			
Worthington	2,386	2,385	1															

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	0															
Akeley			0															
Appleton	1,184	1,221	2			1												
Belle Plaine	1,121	1,204	1			1												
Biwabik		2,690	4	1	1	1					1							
Bovey		1,377	2															1
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	3															
Caledonia	1,175	1,372	1			1												
Cass Lake	546	2,011	1															
Chisholm		7,684	13	1		4		1						1				1
Coleraine		1,613	2			1												2
Delano	967	1,031	1															
Farmington	733	1,024	3													2		
Fosston	864	1,055	2															
Frazee	1,000	1,645	0															
Glenwood	1,116	2,161	1													1		
Grand Rapids	1,428	2,239	6		1	2												
Hibbing	2,481	8,832	8		1										3	1		
Jackson	1,756	1,907	4													1		1
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1				1											
Lake Crystal	1,215	1,038	4			1												
Litchfield	2,280	2,333	5													1		
Long Prairie	1,385	1,250	3			2												
Madelia	1,272	1,273	1															
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	1															
Nashwauk		2,080	0															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	1	1														
Park Rapids	1,313	1,850	3											1				1
Pelican Rapids	1,033	1,019	5	2	1													
Perham	1,182	1,376	4		1													1
Pine City	993	1,258	2															
Plainview	1,038	1,175	1															
Preston	1,278	1,193	2			1										1		
Princeton	1,319	1,555	1	1														
St. Louis Park	1,325	1,743	1															1
Sandstone	1,189	1,818	3	2														
Sauk Rapids	1,391	1,745	0															
South Stillwater	1,422	1,343	2															
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	4			1										1		
Wadena	1,520	1,820	1															
Wells	2,017	1,755	2			2												
West Minneapolis	2,250	3,022	2															
Wheaton	1,132	1,300	1			1												
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	*															
Winnebago City	1,816	2,555	3															
Zumbrota	1,119	1,138	4	1														
STATE INSTITUTIONS																		
Anoka, Asylum			1															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	1		2												
Fergus Falls, Hospital for Insane			11	3												2		
Hastings, Asylum			5	1														
Minneapolis, Soldiers' Home			7			1										1		
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			10	1	1	1												
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			5	3														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1															
OTHER PARTS OF STATE			867	69	10	142	4	4	7		8	1		5	41	45	2	35
Total for state			1962	166	29	289	14	11	15	0	13	1	0	16	72	123	9	91

*No report received. Registrar not doing his duty.

118 stillbirths not included in above totals.

Balanced Nutrition

More than ever—the modern, progressive physician has come to appreciate the value of dietetic supervision as an essential of therapeutic success.

The busy doctor may not go into all the details concerning what, and what not, his patients shall eat and drink; but he must be assured of the fact that **proper balance** between protein, carbohydrates, fat and salts, is being maintained.

Grape-Nuts

and good cream afford a ration at once practically perfect in "balance" (about 1 to 15, protein to carbohydrates), and also easily, promptly absorbed by the weakest digestive organs.

Grape-Nuts is made of wheat and barley, a small amount of yeast, pure artesian water, and a "pinch" of salt.

As far as modern scientific means and methods make it possible, **all** the rich food elements of these important cereals, including the "vital phosphates," are retained in the making of this wellknown and most appetizing food.

The **Clinical Record,** for Physician's bedside use, together with samples of **Instant Postum, Grape-Nuts** and **Post Toasties** for personal and clinical examination, will be sent on request to any Physician who has not yet received them.

POSTUM CEREAL CO., Ltd., BATTLE CREEK, MICH., U. S. A.

PUBLISHER'S DEPARTMENT

THE CONVENTION AND ITS ATTRACTIONS

The annual convention of the American Medical Association is, indeed, an event, an occasion of great importance. Its fundamental purpose is the advancement of medical science; in other words, the improvement of the conditions of right and happy living. From this point of view, the center of convention attractions will be the scientific meetings. The Association has never had equal facilities in any previous meeting to make these section meetings attractive. The University buildings, grouped on a single campus, furnish attractive meeting-places for every body of men within the Association; and the environment of any such body in its meetings will tend to foster the scientific spirit.

In the various Section meetings will be heard all that is best and newest in medicine and surgery, and from the lips of men who are leaders in the world's scientific thought. Pronouncements made in such presences must be able to stand the criticisms of men who also lead in their respective fields of work.

Attendance upon such meetings held under such conditions, is inspiring; and unfortunate indeed is the man who cannot, at least now and then, have the opportunity to look upon and hear the leaders in his line of work.

The Twin Cities congratulate themselves that they can thus offer the Association a meeting-place of so great excellence.

The University buildings and campus are also very attractive, especially in June; and as they will be wholly surrendered to the members of the Association, a social element is thus introduced into even the busy hours of the day, and many old friends will thus find occasion to meet for a few moments' chat. When the day's work is over, the ride to the center of either city is one of only a few minutes; and we venture to say that our visitors will be pleased, and perhaps astonished, by the manner in which they will be transported to and from the University.

Next to the scientific value of these meetings, as seen in the Section gatherings, is the work done by the organization for the betterment of the profession and for the public in the relations of the one to the other. This is not wholly a matter of legislative action; it is largely a matter of creating an *esprit de corps* in the profession itself. Such a spirit is born of contact between men with high aims who have special and favorable opportunities to become acquainted.

From this point of view, the 1913 meeting-place of the Association is a fortunate one, as, we believe, time will amply prove.

The cities of St. Paul and Minneapolis will be seen under the most favorable circumstances, and they are cities well worth seeing. The committees of the medical men in both St. Paul and Minneapolis, and, indeed, the citizens of the two cities, feel that this occasion offers them a special privilege to serve their cities by serving their visitors in showing them the attractions of their cities.

The social meetings will be well provided for, and the entertainments will be of a high order, as evidenced by the engagement of the Minneapolis Symphony Orchestra to furnish music at the President's reception, to be held in the National Guard Armory, a building large enough to accommodate many thousands.

The Section banquets have been well provided for, and perhaps the best to be offered is that to be given to the women physicians of the Association.

It is hoped, and believed, that the clinics will meet the needs and the expectations of the Association.

The entertainment to be tendered the Association by St. Paul on the evening of June 19th promises to be one of the memorable events of the meeting. The St. Paul Auditorium is an admirable place for the reception, and St. Paul knows how to entertain.

SIDE EXCURSIONS

As side excursions have to be a feature of all Association meetings, the committee in charge of this work has been untiring in its efforts to plan excursions that will compare favorably with the best ever enjoyed by the members of the Association. Dr. Kimball, chairman of this committee, gives his word, said to be as good as his bond, that no one shall go away disappointed.

The *Journal of the A. M. A.* for May 10th is the annual convention number and it should be read by all who plan to come to the meeting. It has not reached us as we write these lines, but we are sure it will give very full details of the meeting and of all its features.

TYPHO-BACTERIN AND TYPHO-BACTERIN MIXED

The above is the title of Mulford's Working Bulletin No. 6. This bulletin gives very full and late, indeed, complete, information concerning immunization against typhoid and paratyphoid fevers. The history of the vaccination against typhoid dates back only to 1888 and is given fully in the Bulletin on less than one page. The preparation of the vaccine and its mode of administration are treated fully, together with the dosage, reaction and contra-indications. In this Bulletin of twenty-five pages the physician will find the whole subject well summarized, and from its bibliography he can learn where to obtain practically all that has been written on the subject.

The Bulletin is sent free to any physician who applies for it.

THE GOOD OLD SUMMER TIME

The coming summer season will no doubt produce its usual crop of cases for physicians, peculiar to the season.

Insect bites, bee stings, sunburn and its frequently following dermatitis, strains and small joint injuries from base-ball and other sports, sprained ankles, ecchymosed eyes, infected wounds, etc., will demand the first attention of the physician and a second thought will be a suitable remedy.

All inflammatory conditions, whether from infective or traumatic causes, rapidly subside when dressed with Antiphlogistine. Its convenience of application with the assurance of satisfactory therapeutic results, makes it almost indispensable in emergency work.

THE
JOURNAL-LANCET

The Journal of the Minnesota State Medical Association

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South Dakota State Medical Association

PUBLISHED TWICE A MONTH

VOL. XXXIII MINNEAPOLIS, JUNE 1, 1913 No. 11

THE ETIOLOGICAL RELATIONSHIP BETWEEN ULCER AND CANCER OF THE STOMACH*

By Geo. Douglas Head, B. S., M. D.,
Associate Professor of Medicine, University of Minnesota
MINNEAPOLIS

That cancer of the stomach may be engrafted upon the base of an ulcer or its scar has been accepted as an established fact for almost a century. Cruveilhier, in 1839, recognized that ulcer of the stomach may be converted into cancer and that cancer may complicate perforating ulcer of the stomach. Dittrich (Prager Viertil Jahrschrifts v. die Praktische Heilkunde, vol. v.) reported 8 cases in which carcinoma of the stomach probably developed from ulcer.

In 1883 the pathologist Hauser (Das Chronische Magengesschwür, Leipzig, 1883), in a study of cancer of the stomach, observed that in a small percentage of cases there was unmistakable evidence of the development of cancer upon an ulcer base. Rosenheim further investigated the subject and concluded that 1 in 15 cases of ulcer of the stomach developed carcinoma. Hemmeter ("Diseases of the Stomach," page 576) states that Kollmann has collected 14 cases and that about 14 more have been reported in the literature. Futterer, in 1902 (*Jour. of the A. M. A.*, March 15, 1902), made a careful search of the literature and collected 52 cases, including those reported by himself.

Since the publication of Futterer's study a number of valuable contributions to our knowledge upon the relation of cancer and ulcer of the stomach have been contributed, among them a series of important papers by L. B. Wilson and William McCarty, working on pathological material from the Mayo Clinic.

Granted, therefore, that it is established beyond doubt that cancer may be engrafted upon ulcer of the stomach, the frequency with which this combination of lesions exists is a question upon which there is much difference of opinion. On the one side are those who take the extreme view that cancer is only very rarely engrafted upon ulcer of the stomach. Kollmann states that in the last twenty years combinations of cancer superimposed on ulcer had not been seen in the Tübinger Clinic. Duplant of Lyons, in 1898, in a thesis upon this subject declared that it had never been proven that cancer of the stomach succeeded ulcer.

On the other side, Zenker takes the extreme view that most cases of gastric cancer originate in an ulcer base. Futterer (1902) concludes that a large percentage of carcinomata to have a beginning in ulcer or its scar. Graham (Trans. of the Minnesota State Medical Association, 1902) makes the statement that 88 per cent of cases of cancer of the stomach studied in the Mayo Clinic were preceded by a history of ulcer. Moynihan (*British Med. Jour.*, vol. 1, 1909) states that two out of every three cases of cancer of the stomach give a previous history of ulcer. W. J. Mayo (*St. Paul Med. Jour.*, 1908) claims that 54 per cent of cancers of the stomach which have been submitted to resection in the Mayo Clinic had their origin in ulcer.

Between these two extremes stand the great

*Read before the St. Louis County Medical Society and the Minnesota Academy of Medicine, 1913.

majority of pathologists and clinicians, who, while recognizing the existence of cancer superimposed upon ulcer, lay little stress upon the ulcer, *per se*, as an etiological factor in the production of cancer. Rosenheim places the percentage at 6, Dittrich at 5, Eppinger at 11, Harberlin at 2 to 3, Van Valsah at 14, Steiner and Volman at 4, Fenwick at 3, and Lebert at 9.

The importance of this subject cannot be overestimated. If cancer of the stomach is engrafted upon ulcer in any such percentage as stated by Graham (88 per cent), Mayo (54 per cent), Moynihan (66 per cent), then it is the duty of the physician to advise the surgical removal of all ulcers of the stomach for fear of later developing carcinoma. If, however, these high estimates are not borne out by a more careful study of the subject, then gastric ulcer can be safely treated as it has been in the past, and the services of the surgeon reserved for those cases complicated by pyloric stenosis, dangerous hemorrhage, perforation, obstructive adhesions, and ulcers of chronic type which cannot be healed by medical means.

In a paper written in August, 1904, the writer endeavored to gather together the evidence bearing upon the solution of this question. Additional facts have been accumulating during the years since this paper was published, and it may be of interest to again review the evidence presented by various workers in this field of pathology and clinical medicine.

Turning first to the pathological studies upon the subject, we ask what knowledge can be gained from this source? Here at the outset we encounter a difficulty which makes the material furnished by the pathologist of doubtful value. All forms of gastric carcinomata, except schirrhus, break down and ulcerate. Such ulceration appears early in some cases and late in others. Sometimes the neoplasm becomes entirely disintegrated, and the surface of the ulcerative process is smooth and level.

To determine in a given case at autopsy whether the carcinoma is primary and the ulceration secondary, or the ulcer primary and the carcinoma engrafted thereon, is very difficult, if not, in many cases, impossible. Even MacCarty (*Surgery, Gynecology and Obstetrics*, vol. —, p. 546), who, with L. B. Wilson, takes a strong stand in favor of frequent appearance of carcinoma superimposed upon ulcer, expresses the pathological difficulty in these words: "There are many cases, however, in which the differentiation between hyperplasia and malignant hyperplasia is impossible at present on account of the apparent lack of demarcation between simple inflammatory hyperplasia and malignant hyperplasia."

In the earlier pathological studies of the subject the secondary ulceration encountered in carcinoma was said to be distinguished from ulcer with surrounding cicatricial tissue, in that the edges of the carcinoma are raised and have rampart-like borders.

Hauser (*Das Chronische Magengeschwür*, Leipzig, 1883), who carefully studied the pathology of the subject, gives as a distinguishing feature that in primary carcinoma with secondary ulcer there is never a sharp division between the muscularis and the tissue at the base of the ulcer, while in primary ulcer the muscularis turns up diagonally against the mucous membrane.

Futterer (*Jour. of the A. M. A.*, March 15, 1902) agreed with Hauser as to the behavior of the muscularis, but says that where the carcinoma infiltrates the ulcer there is a fish-hook-like upward bend of the muscularis.

Wilson and MacCarty (Trans. Am. Phys., vol. xxiv., 1909), studying the cases of carcinoma and ulcer resected in the Mayo Clinic, lay no great stress on the behavior of the muscularis, but classify all those cases of ulcer which show "groups of epithelial cells nipped off by scar-tissue and exhibiting all stages of aberrant proliferation with infiltration of the surrounding tissue" as evidence, *per se*, of ulcer developing into carcinoma.

MacCarty (*Surgery, Gynecology and Obstetrics*, vol. x, 1910) makes this statement relative to the pathological evidence of carcinoma engrafted on ulcer: "In ulcers showing carcinomatous degeneration we find small areas of irregular gland-structures with irregular nuclei, which show irregular mitosis. These islands of perverted epithelium may be seen in the dense scar-tissue of the submucosa, just under and connected with the mucosa of the border. Such ulcers do not present any epithelial elements in the base and are, therefore, not ulcerated carcinomata." He says further that it is difficult and often impossible to detect epithelial growths in the wall of early ulcers. In many of such cases, which, grossly, one is justified in calling an ulcer, early microscopic carcinomatous invasions from the mucosa exist. He states, further: "If there are remnants of irregular glands and the muscularis mucosa has been destroyed or penetrated by perverted epithelium, one may be sure that carcinoma is present." "If the base does not

show these elements a careful search should be made for epithelial structures in the rest of the submucosa." "If perfectly regular, one may be dealing with an adenoma; if irregular, one is surely dealing with carcinoma."

The evidence brought forward by Wilson and MacCarty in this exhaustive study of the pathological phase of this subject, while extremely valuable, is not entirely convincing, especially in view of the standard which these investigators have established for undoubted evidence of malignancy. No less an authority than Dr. William Osler, who was present and took part in the discussion, expressed this doubt in the following discussion:

Dr. Wm. Osler: "I should like to ask Dr. Wilson to tell us exactly what is his criterion as to carcinoma in the base of an ulcer. To my somewhat antique pathological eye some of these specimens did not look quite convincing. Secondly, in how many cases were there metastases in the glands? In how many of the 190 cases was carcinoma definitely shown?"

Dr. Louis B. Wilson: "Replying to Prof. Osler's question as to the criteria of diagnosis: we have first the scar-tissue in the central portion of the ulcer, which is apparently absolutely free from epithelial cells. There does not seem to be any more erosion at this point than farther out in the margin of the ulcer, but in the margin, and apparently advancing from the border, are epithelial inclusions showing aberrant proliferation and infiltration."

Dr. Osler: "Yes, but are not those epithelial inclusions the bases of the glands?"

Dr. Wilson: "You mean that they are not carcinoma?"

Dr. Osler: "What criteria have you in some of these specimens—real criteria of carcinoma?"

Dr. Wilson: "I cannot give you the exact percentage now that showed metastases, if that is what you mean by 'real criteria.' I think it ran close to 100 in the entire series. All the cases which I have shown you this evening, except the two ulcer cases, showed typical carcinoma. However, I have purposely kept on the transition side in the sections presented. I did not think it necessary to give the later evidences of carcinoma."

In the discussion of a paper presented by Wilson and Willis (*Jour. of the A. M. A.*, vol. lv, No. 11), Dr. Richard Weil, of New York, made the following statement: "It seems to me somewhat questionable to interpret every instance of epithelial segregation or inversion as evidence of a tendency to carcinomatous degeneration." "The presence of granulation-tissue seems, as a rule, to carry with it a stimulus to this very sort of atypical epithelial proliferation." "Occasionally, of course, cancer may originate in this fashion, but to assert on the strength of these microscopic changes that the majority of ulcers show a tendency to carcinomatous degeneration is an altogether different matter."

I have quoted thus fully some of the discussions, in order to show how uncertain the evidence furnished by the pathologist is in settling this controversy. William Welch (Pepper's System of Med., vol. ii, p. 536) sums up the pathological evidence in these words: "It is difficult to prove anatomically that gastric cancer has developed from an ulcer." "No etiological importance can be attached to the occasional association of cancer with open or cicatrized simple ulcer in different parts of the same stomach."

It seems, however, fair to assume that where a small carcinoma is found at post-mortem or operation infiltrating a part of the border of an ulcer of the stomach, a *bona fide* example exists of carcinoma engrafted on ulcer. But the number of such reported cases is small and serves to prove only the point that cancer may be engrafted on an ulcer base. However, even though the macroscopical or miscroscopical appearance of an ulcerative process in the stomach-wall cannot furnish conclusive evidence as to whether the ulceration is primary or secondary, the post-mortem records do give us some suggestive facts bearing upon the subject under discussion. If cancer is frequently superimposed on ulcer, then cases of cancer of the stomach in young persons, in which class ulcer is common, ought to show an increased percentage of cases of cancer beginning in ulcer. Osler and McCrae ("Cancer of the Stomach," 1900) have collected 6 cases of gastric cancer in the first decade, 13 in the second, and 6 in the third. In not one of these 25 cases is there any mention of pathological evidence going to show that the cancer grew upon an ulcer base. In this connection it is interesting to note that in not a single case reported by Wilson and MacCarty (Trans. Am. Phys., vol. xxiv, p. 593), is the patient under thirty years of age.

If cancer is often engrafted on ulcer the post-mortem records will show the greatest percentage of ulcers located in the same regions of the stomach where the greatest percentage of cancers are located. Welch, in 793 ulcers of the stomach where the situation of the ulcer was recorded, located the largest number, 36.3 per cent, in the lesser curvature, while in 1,300 carcinomas of the stomach only 11.4 per cent were at the lesser curvature. Twelve per cent of the ulcers were at the pylorus, while 60.8 per cent of the cancers were located in this region. On the posterior wall of the stomach 29.6 per cent of the ulcers were

located, against 5.2 per cent of the cancers; on the anterior wall of the stomach 8.7 per cent of ulcers, against 2.3 per cent of cancers; at the cardia 6.3 per cent of ulcers, against 8 per cent of cancers.

To summarize: The pylorus comes first as the most frequent seat of cancer, but comes third as the seat of ulcer. The posterior wall comes second as the seat of ulcer, and fourth as the location of cancer. The cardiac end is third as the seat of cancer, and fifth as the location of ulcer.

If ulcer were a prominent etiological factor in the production of cancer we ought to find the most cancers growing from the lesser curvature rather than from the pylorus. From this pathological evidence there seems to be no relationship between ulcer and cancer of the stomach when studied from the standpoint of location in the stomach-wall.

In the discussion of this question these post-mortem statistics have been criticized on the ground that when a patient dies of cancer the neoplasm has usually spread so far over the wall of the stomach as to have obliterated all evidence of the part of the stomach from which it originated. W. J. Mayo states that most gastric cancers do not originate from the pyloric end of the stomach, but from the lesser curvature. The material, however, from which Dr. Mayo's statistics are collected is a special class of surgical cases, and while it has the advantage of locating the site of early carcinomata more accurately than the post-mortem records could possibly do, it has the disadvantage of studying the site of the carcinoma in a class of cases which do not conform to the common clinical type of the disease. Because of the selected cases of gastric carcinomata which the surgeon is called upon to treat it is probable that the post-mortem figures express more nearly the exact truth than the statistics furnished by the surgeon.

Studied from another point of view namely, that of sex, we can secure valuable information bearing upon the question at issue. If cancer were commonly engrafted on ulcer one would expect to find cancer predominating in the sex in which ulcer is most frequently encountered. Both post-mortem and living records furnish evidence in this connection.

In 1,699 cases of ulcer studied post-mortem, collected by Welch, *40 per cent were in men and 60 per cent in women.* In 194 cases of ulcer studied by Musser (Trans. Am. Phys., vol. vii, 1907) 71 per cent are in women, and 28.9 per cent in men. In 270 cases of ulcer surgically treated, collected by Musser, 59 per cent were in women and 41 per cent in men; in 139 cases medically treated, collected from the literature, 59 per cent were in women and 39 per cent in men. It makes no difference, therefore, from what source the statistics of ulcer are taken, whether post-mortem, surgical, or medical, the predominance of ulcer in women is plainly evident.

On the other hand, in 2,214 cases of gastric cancer 55 per cent were in men and 45 per cent in women. In Osler and McCrae's series of gastric cancers, 81 per cent were in men and 19 per cent in women. Reiche, analyzing the statistics from Hamburg, found 56 per cent in men and 44 per cent in women. It is, therefore, demonstrated beyond doubt that cancer of the stomach occurs more frequently in men than in women.

These facts do not accord with the idea that ulcer plays a prominent part in the causation of cancer, since women, who have the most ulcers, have the fewest cancers, while men, who have the most cancers, have the least number of ulcers. Compare these figures with statistics of the Mayo Clinic between 1903 and 1908, when 126 stomach resections were done. Graham says (*Boston M. & S. Jour.*, vol. clix, p. 635) of these 88 were males and only 38 females.

In this connection I wish to call your attention to Futterer's records of his collected cases of cancer engrafted on ulcer: 24 were in men and 19 in women, also the 12 cases of Wilson and MacCarty, with 9, or 75 per cent, in men and 3, or 25 per cent, in women. These figures do not correspond at all with the frequency of ulcer as met with in men and women, but agree more nearly with cancer as found in men and women.

In the light of knowledge furnished by statistics relative to the frequency of cancer as compared with ulcer in men and women, the statistics of Futterer, and Wilson and MacCarty admit of only one of two interpretations: Either the cases reported by these writers are cancer of the stomach undergoing secondary ulceration, or—and this is more probable—they are a special class of cases coming to the surgeon, because they are primarily old sufferers from chronic ulcer and apply for relief when the symptoms of cancer supervene and aggravate the condition. In either event these are not the statistics which should be relied upon in determining the broad question of the frequeny of cancer engrafted upon ulcer.

Turning from these considerations to the evi-

dence offered by clinical study, we find other facts which are helpful in coming to a conclusion. Ulcer being a disease of early life, if the engrafted-cancer idea were correct we should expect to find in cases of cancer developing before 30 years of age a large percentage giving a history of preceding ulcer. On the contrary, the two prominent features of the reports are a rapid onset and acute course without previous gastric trouble. Of Mathieu's 19 cases under 30 years, the average duration of the disease from the onset of symptoms was three months. Of Osler and McCrae's 4 cases in the third decade, not one was ill over six months, and in two the sickness was only of four months' duration. The onset in all but one was sudden, and gave no suggestion of a previous ulcer.

The symptoms of ulcer of the stomach are those of a chronic gastric trouble beginning in young adult life and continuing, off and on, with remissions for years. In cancer of the stomach, on the other hand, the clinical history in the vast majority of cases is that of a perfectly healthy robust man or woman past 50 years of age, whose trouble began about six months to a year before, with gradual loss of appetite, a slight feeling of distress and fullness in the stomach after eating with belching of gas, gradual loss in weight and strength, finally ending in vomiting, emaciation, and death. Almost every writer upon cancer of the stomach agrees in this clinical picture of the disease.

Ewald, Reigel, Stockton, Fenwick—all describe this same symptom-complex of the usual case of cancer of the stomach. Osler and McCrae, in a study of 150 cases of gastric carcinoma in which special attention was given to securing an accurate early history, found only 4 cases with a history pointing to ulcer, and the authors added: "In none could it be positively diagnosed." In 227 cases studied by Hector Collwell (Archives of Middlesex, vol. vii), the average duration of cancer of the stomach from the first symptom until death was 6.7 months. Of Fenwick's 134 cases in which special inquiry was made relative to early gastric symptoms, only 3 or 4 per cent admitted having suffered from symptoms of indigestion prior to the onset of the fatal complaint.

I have already given you the clinical experience of other writers upon the clinical history of cancer. Let me now present the records of my own cases.

In the year 1902, following Graham's presentation of his first paper in which he stated that cancer of the stomach was engrafted upon ulcer in 88 per cent of the cases coming to the Mayo Clinic, I began taking most careful histories of all cases of cancer of the stomach which came under my observation in private work. Each of these cases was asked two questions: When did you first begin to have stomach trouble? If the patient answered six months or a year ago, I then asked, Did you have stomach trouble before this present sickness began? Of the 58 cases, 77 per cent gave no history of any kind of stomach trouble prior to one year before coming under observation. Ten per cent more gave a history of stomach trouble between one and two years, and 13 per cent gave a history over two years prior to coming under observation.

Compare, if you will, these figures with the histories of ulcer of the stomach, 67 in number, of which I have excellent clinical histories. Twenty-five per cent gave a history of stomach trouble of less than one year; 15 per cent, of less than two years; and 60 per cent, of over two years prior to coming under observation. These figures are a strong argument against the theory that ulcer plays an important rôle in the etiology of cancer of the stomach.

In the light of these facts I wish to call your attention to the clinical history of the cases submitted by Wilson and MacCarty. One of the 12 gave a history of stomach trouble for one year only and one for two years, while 10 of the 12, or over 80 per cent, gave a history of stomach trouble for five years or more. Here again we have evidence which points almost directly to the conclusion that the cases submitted by Wilson and MacCarty are not the usual cases of cancer of the stomach seen by clinicians, but are a special class of clinical cases in which the carcinoma is superimposed upon an ulcer base. These statistics therefore give us an erroneous idea of the prevalence of cancer of the stomach superimposed upon ulcer, and cannot be relied upon in determining the frequency with which cancer of the stomach in general is engrafted upon ulcer.

Compare the clinical picture of cancer which all authorities agree upon with the clinical picture of cancer of the stomach as described by Graham (*Boston M. & S. Jour.*, vol. clix, No. 20, p. 635). He says in eliciting the history of cancer we find three types:

1st. Those with a long series of repeated attacks. This is the typical ulcer period.

2d. Those in which the initial symptoms were more or less severe, but where months or years

of quiet intervene before malignant symptoms appear.

3d. Those in which the acute symptoms suddenly attack the patient in the midst of apparent perfect health.

"The percentage of long histories [that is type 1] has not held so high of late as in earlier years [Graham formerly claimed that 88 per cent of the cases gave such a history] though it still averages 50 per cent."

It is therefore evident that the class of cases studied by Graham in the Mayo Clinic is of quite a different type of cancer from that seen by clinicians the world over and described by them as typical cancer of the stomach.

The vomiting of blood is one of the prominent symptoms of ulcer of the stomach. In a large series of cases from all sources collected by Martin, 28 per cent gave such a history. In 1871 cases studied by Musser (Trans. of Congress of Am. Phys. and Surgeons, vol. vii) 8 per cent had hemorrhages severe enough to require surgical treatment. In my own 67 cases 10 per cent had had gastric hemorrhages more than two years before coming under observation. If cancer is frequently superimposed upon ulcer a history of vomiting of blood prior to one year before coming under observation ought to be a prominent feature in the histories of cancer. In my own 58 cases of cancer of the stomach not a single instance of vomiting of blood prior to one year before coming under observation could be found.

We, however, have other standards by which to judge the nature of the cases presented by those who advocate the engrafted-cancer theory. All authorities agree that in cancer of the stomach a very large percentage of the cases show no free HCl in the gastric contents.

Of Osler and McCrae's 87 cases, 92 per cent showed an absence of free HCl. Of 256 cases reported by Boas, Hammerschlag, Schneider, and Rosenheim, 86.3 per cent showed no free HCl. In 495 cases collected by Fenwick, 89 per cent showed no free HCl. In my own 58 private cases, 91 per cent showed an absence of free HCl when first coming under observation.

Contrast these figures with Wilson and MacCarty's 12 cases in which only 45 per cent showed an absence of HCl. Gastric analyses in cancer must be made as early by other clinicians as in the Mayo Clinic. Why, then, this marked discrepency if we are dealing with the common type of cancer of the stomach?

We have still another standard by which to judge of the material presented by Wilson and MacCarty. All authorities agree that in cancer of the stomach lactic acid is usually present in the stomach-contents. Of Osler and McCrae's series, 75.3 per cent showed lactic acid present. Schiff's 268 collected cases showed 73.5 per cent with lactic acid. Strauss places the percentage at 91, Rosenheim at 78, and Hemmeter at 82.

Contrast these figures with the cases reported by Wilson and MacCarty, in which only 36 per cent showed the presence of lactic acid in the stomach-contents.

All authorities upon this subject agree that cases of cancer engrafted upon ulcer usually show the presence of free HCl in the stomach-contents after a test-meal. Here we have a further standard by which to test the theory under consideration. Riegel, speaking of cases of cancer succeeding ulcer, says such cases are characterized by normal gastric secretion which may continue until death. They are distinguished by this symptom (presence of free HCl) from the majority of cases of ordinary carcinoma of the stomach. Of the 495 cases of cancer of the stomach collected by Fenwick, 9.7 per cent showed free HCl in the stomach-contents; of Osler and McCrae's cases, 8 per cent; in my own cases, 8.5 per cent. Granting that all cases of cancer showing free HCl in the stomach-contents were of ulcer basis, only between 8 or 10 per cent could be counted in the category of carcinoma engrafted on ulcer.

Judged, therefore from the standpoint of clinical histories and gastric-contents examinations, the cases recorded by Wilson and MacCarty to prove that carcinoma of the stomach is engrafted upon ulcer in 50 per cent of the cases, are a special and exceptional series of cases. They do not conform to the common type of cancer of the stomach as seen by most clinicians. These studies are of value in establishing the long-accepted idea that cancer of the stomach is engrafted upon ulcer, but they give us no information upon which we can rely in determining what percentage of all cases of cancer of the stomach originate in an ulcer base.

Cancer of the stomach is a disease of short duration. Of 141 cases reported by Schutz (*Wiener Med. Wochenschrift*, vol. vi, 1908), 74 per cent were dead with the disease within six months after the first symptoms appeared. Of 19 cases in young persons collected by Mathieu, the average duration was three months from the onset of symptoms. Of Osler and McCrae's 63 cases in which the duration was known from the first symptoms until death, 76 per cent were dead

within one year. From a study of 108 cases, Brinton estimated the average duration at 12½ months. In Fenwick's series 83 per cent were dead within 12 months.

The total mortality of cancer of the stomach is about 1.5 per cent of all deaths. Ulcer or ulcer scars have been found in about 3.32 per cent of all persons coming to autopsy. Ulcer and cancer have been found at post-mortem in different parts of the same stomach entirely isolated and without apparent relationship each to the other.

In view of the evidence presented in this paper, the burden of proof still rests with those who maintain that cancer of the stomach is engrafted upon ulcer in a large percentage (50 per cent) of the cases.

A careful study of the clinical histories and gastric findings of the cases offered in evidence to prove that cancer of the stomach is frequently engrafted upon ulcer, proves that these are a special and exceptional class of cases of cancer of the stomach and cannot be relied upon in determining the broad question as to the number of carcinomata in general that develop upon an ulcer base.

THE LIMITATIONS AND POSSIBILITIES OF X-RAY SKULL DIAGNOSIS

By George Earl, M. D.

ST. PAUL

Roentgenology of the skull is practiced systematically by only a few men. The labor and study required to interpret the plate, to say nothing of the technic of the picture, is considerable; however, the diagnostician, whether neurologist, surgeon, eye, ear, and nose specialist, or general practitioner, can acquaint himself with the possibilities and limitations of *x*-ray skull diagnosis, and it is from this standpoint that the writer presents some facts he has gathered and experienced.

Changes in the soft parts of the brain, such as meningitis, abscess, hematoma, or soft tumors, as glioma and sarcoma of the ventricles, cannot be seen *per se*. With the exception of calcification and the psammomæ, such conditions can be diagnosed roentgenologically only when they affect the bony structure, producing exostosis, thinning of the plate, or some other deformity. Pictures have been published purporting to show hematoma, but what they really illustrated was an optical illusion. As the skull is round in outline, all parts to be demonstrated cannot lie directly on the plate, and therefore the rays reflect differently, giving the shadows which have been falsely interpreted.

Returning to the subject of calcifications: They not rarely take place and of course can be seen. The pineal gland is found normally in the frontal level, lying 1 cm. behind the meatus externus and 4.5 cm. above. Average calcification takes place at about 30 or 40 years of age, but may be very young. Displacement of this normal point corresponds to retraction or pushing, and is of the greatest value in diagnosis.

Most interesting changes are the deformities of the skull resulting from tumors and other intracranial conditions, giving destructions, hyperostosis, and enlargement of vessels. The pressure of hydrocephalus may cause either a general or half-sided enlargement, and brain tumor may have the same effect. Localized resistant prominences result from change in the soft parts, as, for instance, a fibroma, although such localized and general thickening of the skull can occur without any internal pressure in such diseases as rickets, syphilis, leontiasis, and osteitis deformans (Paget's osteitis). In old people there is a compensatory thickening as the brain atrophies.

Localized destructions occur in the upper part of the skull very seldom. An endothelioma is a cause, as also are metastatic tumors from the thyroid, mammæ, prostate, ovary, and suprarenal gland. The defect caused by an endothelioma is more a pressure atrophy, the bone is thinned and protruding, while the infiltrating tumors, such as the metastatic carcinoma, make sharp irregular defects,—the neighborhood showing a honeycombed structure. Syphilitic defects are often kidney-shaped, whereas tuberculosis of the skull is not to be seen, as a rule.

In localized destructions of the base, the hypophysis tumors, intracellular and extracellular, play a most important rôle. In intracellular tumor the enlargement may make the sella deeper, so that the floor is thinner and nearer the floor of the middle fossa. The dorsum sellæ is thinned, reposed, or reclined, and seems to be longer. The internal clinoid process is thin and shorter. The floor of the sella is thinned, but is not deep-

ened. When the hypophysis tumor is very large then the whole sphenoidal body is destroyed, so that we cannot distinguish whether the tumor is extracellular or intracellular.

The described destruction for hypophysis tumor can also be caused by other basilar growths, by primary conditions of the sphenoidal bone or by intracranial conditions with high pressure. The basilar tumors in this region can be endothelioma of the dura, tumors or cysts of the basilar parts of the temporal and frontal lobes of the brain, fibroma, and sarcoma of the basilar nerves and especially of the acoustic nerves, tumors and cysts of the third ventricle, localized meningitis, and aneurism of the basilar arteries. Primary conditions of the sphenoidal sinus, such as malignancy and tuberculosis of the body, may cause a pressure-atrophy of the skull, giving an abnormal form, but with the structure conserved, or the infiltration may cause an unclean structure. Though rarely, intracranial conditions with high pressure can cause the same deformities as an hypophysis tumor, yet there will be other symptoms of the general pressure showing on the skull, especially deepened jugæ.

The tumor acousticus is of interest, not only because about 15 per cent of operative tumors in the larger clinics, such as von Eiselberg's are this, but because, from their pathological nature (85 per cent to 90 per cent fibromata) and location, they should offer, with modern brain surgery, one of the most hopeful fields. Roentgenologically, however, they are difficult to demonstrate, and we must depend for early diagnosis on the neurologist and otologist. Typically, the dorsum sellæ is thinned and pushed forward, and the internal meatus is enlarged

Vessels of the skull give important *x*-ray information. On the side where a tumor is lying the veins are frequently enlarged, and when the tumor compresses a venous sinus we find a collateral circulation in the next neighborhood. A compression of the cavernous sinus makes an enlargement of the sphenoparietal sinus. A compression of the longitudinal sinus can also cause an enlargement of the sphenoparietal when the pressure is on the vertex. The caliber of enlarged diploic vessels can be that of the large veins of the leg and add greatly to the danger of operating. Differential diagnosis between different grooves of vessels is not difficult. The meningeal artery is always in the parietal bone, beginning on the anterior end of the middle fossa and going upward and backward. The caliber diminishes slowly, dividing like the branches of a tree. On the other hand, the diploical vessels form a network, are irregular, vary in caliber, and often show varicosities. The sinuses and larger diploic veins end in Pacchionian bodies. The same Pacchionian bodies enlarged can cause fearful, persistent symptoms. They can be diagnosed comparatively easily with the *x*-ray, and cases are reported of their removal with relief of symptoms.

As to the eye, ear, nose, and throat work the *x*-ray has been established as a routine in the localization of foreign bodies and the finer diagnosis of sinus conditions. Dr. Arthur Schüler, of Vienna, who is the leading authority and who has done more to put skull work on a scientific basis than any other man, relates the case of the patient who was buffeted between the oculist, rhinologist, and neurologist, none of whom could find anything definite in their respective fields as the cause of the man's symptoms. Finally he came to Schüler, who located an osteoma near the orbital and nasal cavity. The operation for removal proved comparatively simple, giving the man relief from his long suffering. Symptoms, such as persistent headache, neuralgia of the fifth nerve, optic neuritis, and exophthalmos, should have an *x*-ray picture in the absence of definite localizing data.

Soft tumors, such as carcinomata and sarcomata, occurring in the sinuses are very hard to demonstrate, for they can make the same pictures as mucus. We can diagnose it only when the tumor destroys the bone. In general, if a sinus is only partly filled, a horizontal line speaks for a liquid, and an irregularity for a tumor. The differential diagnosis between an osteoma and a mucocele is also difficult. Both have a bone-wall, but the structure and form are different. The horizontal line of a liquid is again of value, and the bony tumor presents a more lobulated structure.

CONCLUSION

1. Roentgenology of the skull is limited in its diagnostic ability, yet has a great deal of value if persistently carried on.

2. While the skull, surgically, presents difficult problems, and brain surgery is not an inviting field as far as results are concerned, yet there are cases that can be helped and in which the *x*-ray is essential, both as to diagnosis and operative procedure.

3. Further, the neurological diagnosis and treatment can be put on a more scientific basis.

REFINEMENTS OF DIAGNOSIS POSSIBLE IN GENERAL PRACTICE*

By J. P. Schneider, M. D.

GREEN ISLE, MINN.

In a previous communication to the Society I drew attention to the practical value of tuberculin in arriving at the much-desired early diagnosis of active tuberculosis. I have since confirmed my early experience, and have learned to depend largely upon the Moro reaction in obscure lesions in children, and the hypodermic use of Bureau tuberculin in adults.

In this short paper I shall draw your attention to the practical, every-day utility and dependability of several common technical examinations possible and desirable in general practice. In order to impress upon you their striking value I shall cite each in connection with an actual case in my practice. You will readily see how, in their several applications, they often form the very keystone of the diagnostic arch.

I—*The Leucocyte Count.*

Case-history: Rev. M. S.; age 36; Parish Priest; Irish.

Family history: Negative.

Personal history: Came to present location from Minneapolis, 40 days ago; no serious illness in the past.

Present condition: Two weeks ago began to suffer from what was thought to be a severe cold; headache, backache, poor appetite, and insomnia; no nose-bleed; hard chill, or vomiting. Physician called ten days later; diagnosed delirium tremens, owing to presence of tremor, insomnia, agitation, and slight fever. Yesterday the patient slipped away from the attendant and wandered over the cold country-side for three hours. When seen the patient was sitting up, and complaining of no pain, but very agitated, restless, and thirsty.

Present findings: Obese, flushed face; temperature, 101.5°; pulse, 105, dichrotic; respiration, 28; lungs, negative, except for a few diffuse coarse rales; heart, negative; abdomen, four possible rose-spots between navel and breasts; general moderate tympany, with loud gurgling; spleen, not palpable; liver, edge not felt; reflexes: exaggerated knee-jerks, no ankle clonus, no Koenig sign.

Diagnostic Problem Involved: In this zone, the north temperate, a fever lasting two weeks or over is one of three things: typhoid, tuberculosis, or sepsis.

Given, then, the above history and objective findings, our problem resolves itself into differentiating these three. However confusing the symptomatology, and even the ocular findings, it is true, fortunately, that of these three conditions one only is constantly accompanied by a lowered leucocyte count, a leucopenia, and that one is typhoid. The count in this case revealed 4,800, 5,000 and 4,800, respectively, on three separate counts. Three days later the Widal reaction was present for the first time 1-50. This patient ran a hard typhoid, with much active delirium, two small hemorrhages at the end of the fourth week, dysuria, and tendency to impaction; but he made an otherwise uneventful recovery in eight weeks.

II—*Chemical and Microscopical Examination of Stomach-Contents.*

Case-history: Mr. M. H., aged 46; farmer; German.

Family history: Negative.

Personal history: Negative until at about the thirtieth year, since which time he has suffered from sour-stomach and pressure after heavy food, but not after liquids; occasional vomiting before breakfast of mucus; bowels, regular.

Present findings: General condition excellent; normal habitus; relatively large stomach; lower border under distention one finger above umbilicus; other findings, all negative.

Diagnostic Problems Involved: In this case the anamnesis points the way clearly enough to a finding of hyperacid or anacid gastritis, but gastritis certainly. But observation based on repeated test-meal examination of these cases teaches us that, depending upon the *stage*, there may be a hyper- or hypo-acidity. To intelligently prescribe, it will be of the greatest help to know the stage accurately, as this case teaches. The Ewald test-breakfast removed in one hour yielded 100 c.c., which separated in two layers on standing, with a very strong sour odor, the food remnants well digested; free HCl, 90; total acidity, 105.

Upon a gastritis diet and olive oil, one-half ounce before meals, recovery was complete in three months, and has remained permanent to date.

Case-history: Mr. F. S., aged 64; farmer; German.

Family history: Negative.

Personal history: Never seriously ill; always had a sound stomach.

Present condition: Five months ago began to experience attacks of vomiting, twenty to forty minutes after meals; little, if any, food vomited; pressure after solids; feels weak, and getting daily weaker; appetite fair, poor for meat.

Present findings: Nutrition, fair; skin, sallow; periphery of sclera, jaundiced; temperature, 98.6°; pulse, 84; respiration 20; radials thickened; lungs and heart, negative; abdomen, fullness in epigastrium, resistance

*Read before the Camp Release District Medical Society, July, 1912.

marked; no tumor or free fluid. Inflated stomach one finger above the umbilicus; liver dullness, diminished.

Urine: Negative.

Blood: hemoglobin 50%; marked serum ring; microscopic poikilocytosis, achromia; no normoblasts.

Diagnostic Problem Involved: In this case you will perceive at once in the anamnesis the significant point that for the first time a man aged 64 begins five months ago to have stomach trouble. That spells organic lesion. There is a typical intense secondary anemia, a cachetic hue, an indefinite resistance in the epigastrium, vomiting but no pain, pressure only. The Ewald test-breakfast recovered in one hour 90 c.c.; difficult of removal owing to thick consistency; food poorly triturated; negative to Congo; free HCl absent; lactic absent; washings of fasting stomach yielded a few c.c. of mucus and no food particles; microscopic blood, pus cells, and columnar epithelium.

These findings, taken in conjunction with the secondary type of anemia and the significant history, allowed me to make a provisional diagnosis of organic disease. I referred the patient to the Rochester Clinic for an exploratory. The operative findings where pancreatitis and cholecystitis, probably malignant *early*. Drainage by way of the gall-bladder allowed recovery to date, with hemoglobin 85 per cent, 1 year later.

III. *Systolic Blood-Pressure.*

Case-history: Mrs. N., aged 41; housewife; German.

Family history: Negative.

Personal history: Negative until 20, when, just before the birth of her first child, she developed kidney trouble with edema. From this she apparently recovered in the weeks following delivery. One year later had an attack of acute multiple arthritis. Recovery in six weeks. Four years later abdominal pain and fever for six weeks.

Present condition: For twenty years has suffered almost continually from sick-headache attacks, dizziness, occasional vomiting, shortness of breath, especially at night, and nervousness. During the last several years these symptoms have been more pronounced.

Present findings: Nutrition good; skin clear; expression sad; pulse, 90; high tension, regular; lungs, negative, except for expiratory wheezing; heart, negative, except a slight increase of relative dullness to the right and accentuated 2d aortic; abdomen, negative; vaginal, negative; urine, clear, sp. gr. 1018, no albumin, and no sugar; patellar reflexes exaggerated.

Diagnostic Problem Involved: This patient is a so-called "rounder" and has had many cures for neurasthenia by various physicians; and her story has become of almost interminable length in consequence. The question we must face is the interrogation that today every intelligent physician is forced, in the light of present-day pathology, to put to himself, namely, is this purely a neurosis—and that is a rare bird—or is there here an underlying organic basis?

The systolic blood-pressure repeatedly taken read invariably from 200 to 212 mm. Taken in conjunction with the accentuation of the second aortic and a history of acute nephritis at 20, it is but a short logical step to label our case contracted kidney, and that without a trace of albumin in the urine.

IV. *Ophthalmoscopy.*

Case-history: Master A. S., aged 11; school-boy.

Family history: Negative, except one uncle, who is afflicted with a nervous malady.

Personal history: Suffered from malnutrition up to eight months. Developed into normal vigorous boy. Started school at 6.

Present condition: Eight months ago began to complain of headache after school hours, especially severe in right temple, in fact so severe as to cause crying for hours. Four months ago had a spell of vomiting, followed by a convulsion, with a short coma. From this date on he would have one or two a week, until one month ago when, after convalescing from measles, which he had with the rest of the children, he began to have severe convulsions, one following upon another. He was seen by me in this status.

Present findings: Temperature, 99°; pulse, 88; coma deep immediately after convulsion, which did not begin in one set of muscles or one limb; lungs and heart, normal; abdomen, negative; albumin in urine, following seizures.

Diagnostic Problem Involved: Just as happened in this case, a snap diagnosis would naturally be epilepsy—idiopathic epilepsy. However, in the history of this unfortunate boy you will have noted that there was *pronounced headache*, which is unusual in epilepsy. There was also vomiting, causeless and forcible. There was, upon closer examination, double vision. In spite of the fact that the convulsion does not begin as a Jacksonian, we are nevertheless led to suspect that the boy has a tumor of the brain. How to substantiate that suspicion or eliminate it entirely is our problem in a nut-shell, and that should be granted us in a fundus examination.

It is not to be expected that the general practitioner be an expert with the ophthalmoscope, but I believe it would be fair to assume that every man should be able and prepared to recognize a choked disc. Left fundus revealed an advanced choked disc; right just beginning; no retinal hemorrhages.

My findings and diagnosis in this unfortunate boy's case were substantiated by experts. But the good ended with the prognosis. In the present stage of brain surgery in the Northwest it was deemed inadvisable to interfere, particularly because localization was not accomplished.

V. *Laryngoscopy.*

Case-history: Mrs. W. S., aged 33; housewife; German.

Family history: Negative; no tuberculosis in family or other associates.

Personal history: Normal infancy and childhood; menstruated at 13; well until 25th year; began at this time to experience difficulty in singing in church choir. This difficulty at first manifest when singing high notes. In the course of the next year it amounted to a positive hoarseness apparent in ordinary speech. Upon using the crippled voice there would soon be experienced pain in the substernal region.

Present condition: Hoarseness; pain in substernal region, frequent headaches and nervousness; no cough.

Present findings: Temperature, 98.8°; pulse, 90-100, fluctuating with the emotions; eyes, negative; ears, negative; naso-pharynx, negative; lungs and heart, negative; no tremor; urine, negative.

Diagnostic Problem Involved: The significant points in this case are a hoarseness of eight years' duration, progressive daily, with substernal discomfort increased by increased use of the crippled voice; pulse, 90-100 fluctuating rapidly; tendency to patchy hyperemia of the skin. Obviously, the important next step is a mirror examination of that larynx. With no great difficulty this was accomplished, so that the first sitting yielded a splendid view, showing no polypus, no ulcer, no edema, and no abnormal redness, but, upon attempting to phonate "Ah," I made out a distinct lagging of the right cord—it made no attempt to approximate the left cord, which latter came considerably across the midline.

With this first real finding in mind I sought the cause for the state of interference on the right side external to the larynx, or perhaps involving the right recurrent laryngeal. To my delight I did, in palpating deeply in the sternal notch, unearth a tumor, movable but attached higher up apparently to the right lobe of the thyroid. In the operation for its removal it was found to be, as diagnosed, a cyst of the thyroid, of the size of an egg, wedged sharply between the upper sternal aspect in front and the deep cervical group of muscles behind, crowding the trachea and the recurrent nerve. The posterior capsule of the cyst was left intact because of the presence in it of the fibers of the nerve.

This patient is rapidly recovering the normal voice, and from the third day following the operation has not experienced her eight-year-old sternal discomfort.

In conclusion, then, I would make a special plea for a more thorough and technical examination of our chronic cases in particular, with often the happy result of causing that bugbear of the general practitioner, the so-called "rounder", to resolve himself into a satisfied "stayer".

A CASE OF INTESTINAL OBSTRUCTION BY GALL-STONE

By G. Schwyzer, M. D.

MINNEAPOLIS.

Anamnesis.—The patient's father died in the army while she was only a small child. The mother succumbed to cancer of the breast when about fifty years old. The patient brought five children into the world; and the youngest of them is twenty-three years old. She entered the climacterium many years ago.

Until last spring she seemed to be a well woman, but in March she became sick of jaundice and remained in bed about two weeks. The attending physician mentioned that it was a most obstinate case of jaundice. From the husband and the daughter we learn that the patient remained jaundiced, though gradually improving for two months. During her jaundice she had dull pains in her right side often ending with a colic-like pain through the whole abdomen. She never seemed to become absolutely well during the past summer, and never seemed to be like herself any more; and still she had a fairly good appetite, could eat food of any kind during all the summer. Occasionally she had a sour stomach, and belched and threw up a mouthful or so, but never had a pronounced vomiting spell.

On Saturday night, Oct. 26th, she became very ill, vomited, and had slight pains in the region of the right hypochondrium. Closer investigation showed in the morning that the stomach contents contained fecal matter. It was of very dark-brownish color and had a peculiar odor (jejunum). Ever since that time the patient could not keep any food in her stomach and vomited right along, with or without nourishment.

A physician saw her the following day, Oct. 27th. A consultation brought her to the city but only three days later, on Wednesday afternoon, Oct. 30th. Conditions remained un-

changed, and we were consulted Thursday morning, Oct. 31st.

Before us we see a farm woman, 60 years old, with good color in the face and without cachetic looks, though showing in her eyes the strain of her sickness. The tongue is distinctly dryish. Feeling the pulse we notice the wrists felt cold while the hands and fingers were still warm. The pulse is of bad quality, is not easily felt, its wave is shallow, and a beat misses once in a great while, but otherwise it is regular and in frequency about 112.

The nurse shows us a large dish of brown liquid which the patient just vomited, the content has a distinctly fecal odor (small intestine). When asked how long the patient has vomited such fecal matter, we learn that this existed since the 26th of October, that is, fully five days. The patient complains of pains all over the abdomen

Fig. 1. One-fourth enlarged.

but she is not able to locate same definitely. Our careful percussion shows that the liver dullness is not existing in its lower two-thirds. All over the abdomen, which is inconsiderably distended, we find sonorous sound, slightly tympanitic. We are not able to make out any distinct dullness pointing to the seat of trouble. Carefully palpating, we notice a slight resistance in the right lower abdomen, and only once does the patient have a serious pain when pressing deeply between the navel and symphysis.

Vaginal examination shows that we have no infiltration of the smaller pelvis. We are not able to feel the side of uterus, in front of the same, or in Douglas cul-de-sac any distinct resistance or mass.

In spite of not finding the place of obstruction, which is evident by the persistent fecal vomiting of five days duration, the dry tongue, the facies Hyppocratica, and the slightly distended abdomen with general pains, we propose surgical interference as early as possible.

Operation.—We enter through the rectus muscle above the navel on account of the history of jaundice. The abdomen opened, we find no stones in the region of the gall-bladder, but adhesions and abnormal anatomical conditions. The gall-bladder not being distended, the liver tissue, which we distinctly see, being of normal color and shape, we feel downward and notice a distended gut coming up toward our hand and to the right of the liver greatly ballooned. We therefore close the incision as quickly as possible and proceed through a new incision below the navel. The ballooned gut appears to be very distended jejunum. The gut looks very much cyanosed, dark-blue, and extremely distended, and its mesenterium, which we particularly investigate, thinking of a thrombotic process, is found to be normal. After developing about one-half of the jejunum carefully covered with hot gauzes, we suddenly discover collapsed gut of the size of a small finger in the lower part of our incision and know now that between the two we must find our obstruction, which we find almost suddenly. The ballooned gut is shut off by an oval but hard mass of smooth surface, the size of a small chicken egg. The wall of the gut shuts off tightly onto this mass—as tight as a tight glove on a finger. To one side we have the distended gut: on the other side we have absolutely collapsed gut. The distended gut shows, in a distance of about eight to ten inches from the point of the obstruction upward, peritonitic changes in the form of greenish, yellowish flakes covering the convexity of the gut.

Most of the distended jejunum is now carefully placed back into the abdominal cavity. This is apparently done with ease, and only the part of the obstruction is left on the outside well packed off from everything else. A clamp is put above the obstruction, the hard obstructing mass filling the lumen of the gut is placed in the left hand, and a silk suture is laid at each end of the obstruction so as to suspend this part of the gut in order to prevent any bowel contents from flow out. Between the two sutures we incise with a knife making a longitudinal incision of about an inch and a half, cutting through the outer periphery of the gut wall onto the mass, and we are able to press through this incision a body which proves to be a gall-stone.

The incision is closed with a continuous suture of linen that catches the entire wall. A fine linen serosa suture is continuously laid over it. After removing the clamp we notice gas running through the place of the former obstruction, fill-

ing the lower gut. The sutured gut is replaced in the abdomen, and the incision closed with a figure-of-eight silk-worm gut.

The operation lasting over an hour, we give a quart of saline in the breasts during the operation. The patient has strychnine, 1-30 gr., every few hours, also camphorated oil. She gets a whole quart of saline by enteroclysis, and when we see her six and a half hours after the operation she does not complain and does not vomit any more, but the coldness of her wrists is more marked; the pulse still being 118 per minute. Small quantities of ice and tea are allowed by mouth, but, in spite of all this and adding hypodermoclysis early in the morning, she succumbs.

The specimen is an oval gall-stone with some thin covering of bowel content over it. It is partially an enterolith, as we distinctly see scales and skins on the specimen which speak for food particles. Its form is oval, its size that of a pullet's egg, and its measurements are 4.1 cm. long, 3 cm. wide, 2.5 cm. thick. Its circumference measured crosswise is 8.8 cm., and lengthwise is 10.8 cm.

According to Wilms' "Intestinal Obstruction," we find that up to 1906, there were 249 cases published.

This obstruction naturally happens more in women than in men, as we find gall-stones more frequently in women.

Comparing our case with others we can emphasize the point that in these cases the anamnesis is not characteristic. Mostly there is no gall-stone colic nor jaundice. In our case we had a protracted jaundice without severe pains.

That anatomically the intestine lessens its lumen toward the ileocecal valve is one of the reasons that a foreign body like ours passes about a yard downward in the jejunum without making any trouble.

Wilms says that "it is of interest to us to know the fact that the lumen of the small intestine becomes smaller downward, an average diameter being, first, 25-30 mm., becoming only 20-25 mm. in the lower jejunum. Gall-stones, foreign bodies, and Murphy buttons will therefore find greater difficulty to pass through the lower small intestine. Chaput et Lenoble have shown that the large Murphy button having a diameter of 26 mm. and a circumference of 81.5 mm. can cause difficulties when passing the jejunum."

No twist of the intestine existed in our case, and the gallstone laid lengthwise, offering the small circumference to the intestine. These two latter points spoke in favor of a passage of the stone, and still the obstruction took place.

We found a local peritonitis at time of operation. Helferich has especially brought out this point and emphasized the fact that irritation and ulceration of the mucosa by the foreign body and infiltration of the wall with final peritonitis are pathological changes which follow each other and which, when causing peritonitis, bring slackening of the peristalsis, which is nothing else than weakening of the muscles in the wall of the intestine.

SURGERY IN COUNTRY HOSPITALS*

By L. Sogge, M. D.

WINDOM, MINN.

About four years ago, at the Minnesota State Medical Association meeting, we listened to a very able paper, part of it dealing with the abuse of surgery among the recent graduates in medicine. It stated that to do surgery "a man should serve at least four or five years as assistant to an active surgeon." How many could possibly fulfill such a requirement, and, I would like to ask, how many of the surgeons here did that before they undertook any surgery? While listening to the paper I hardly thought it was the right position to place the young practitioner in, and the more I thought it over the less logic I can see in it; and since that time I have been trying to look into the matter to see how it works out as applied to the country part of the medical fraternity. I tried to find out how much training in surgery the average country physician had, who was doing some surgery, and that successfully. I wrote men in smaller places,—towns of 1,500 to 3,000 population,—where they had hospitals with five to fifteen beds. Of eleven men who responded, they had an average of one year interneship after completing the university course. On an average they had been in practice

*Read at the 44th annual meeting of the Minnesota State Medical Association at Duluth, August 13 and 14, 1912.

for six years, and are now doing an average of one major operation a week.

My position is, that the physician doing surgery in a smaller town is a great deal more anxious and particular about the results of his cases than the great surgeon of our cities. His every case is watched by the whole community, and one case fatal or of unaccomplished result will result in his losing the confidence of the community where he practices, and hence his great care before advising an operation, and, when first undertaken, to do it carefully and with the greatest skill possible, while the noted surgeon in a large city has no reputation at stake, for that is already established, and cases lost occasionally are known only in the small circle of the patient's friends. One is often inclined to believe while watching some noted surgeon operate that he tries to see how much he can do to the human anatomy and still have it survive.

Quoting further from the paper, it says:

"If surgery is to maintain its high standing in the public mind of the future as in the past, these abuses of authority must be corrected by the enactment of laws prohibiting novices from undertaking operations that they are not qualified to do successfully, except in emergency cases." True, we are all supposed and expected to meet and act judiciously in an emergency, for example, in a case of strangulated hernia, ruptured ectopic pregnancy, ruptured appendix, intussusception, and accidental wounds of any nature. Now, is it not fair to allow a man who must meet that kind of work to do a simple appendectomy, resect ovaries, remove gall-stones and even the gall-bladder, shorten the uterine ligaments, repair the cervix, the perineum, hemorrhoids, etc., when he has plenty of time to study up for them as well as his facilities will allow him? Doing some of that work will naturally prepare a man to do better work in cases where no help can possibly be had, and I maintain every community is better off where such work is being done than where it is not. Show me the physician in any country practice, unless he is specializing in medicine,—and lets it be known that he does so,—who has to take all his surgical cases to the cities to be operated on, who is respected and looked upon as knowing what he ought to know for a man of his position. I think any one of us can pick out a number of men who have practiced for many years and who are not receiving their just share of practice just on that account. A younger man comes along and does some surgery, and the people in the community believe he knows more, and he gets both the medical and surgical work.

Financially, it means a great deal. If you take your patient to the surgeon you know he gets the egg while the family physician can crumble up the shell, but it makes a rather dry living for him and his family.

Financially, I believe the patient is better off. He is out no railroad fare, the home surgeon probably never gets as large fees, the money is left at home, and the care of patients at the small private hospitals compares quite favorably with that of the larger institutions.

Do not understand me that I am not in favor of preparation, for I believe the best a man can possibly get is none too good, but there is a limit to all requirements. I believe any man who fulfills the requirements of our State University Medical course, including a year in a large hospital, having there the privilege to assist in a large part of the surgical work done—I believe such a man, if he has any skill at all, having the proper facilities, i. e., a good hospital and assistants, is entitled to do some surgical work, and he will do it successfully.

THE AFTER-CARE OF DISCHARGED CASES OF PULMONARY TUBERCULOSIS

By Alfred Meyer, M.D., New York

Medical Record, August 10, 1912

Meyer handles his subject from the different classes of material he is confronted with, viz.: "apparently cured cases," "disease arrested," "improved," or "unimproved."

In looking over the situation in New York City alone, he maintains that there should be 6,500-7,000 more beds for the tuberculous than there are available at the present time. For the discharged cases which are apparently cured, improved, etc., at least those who again, for economic reasons, have to take up industrial situations he advocated the farm colony idea, and would make the colonies in the nature of annexes to already existing sanatoria, and thus obviate the phthisiophobia usually met with. The patients would be paid a regular wage, under the constant supervision of the sanatorium, and would be compelled to submit to periodic re-examinations, say, every three or four months, irrespective of how well they felt.

Meyer also advocates the increase of women's auxiliaries connected with the tuberculous clinics, and, lastly, of course, states with Dr. Gulick that *what* to do in tuberculosis is a medical question—*how* to get it done is a social question, a problem for the social engineer.

(The paper withal is a very clear outline of the tuberculosis problem and a seemingly practical way to make that class of individuals nearly, if not quite, self-supporting.) John Eldon Hynes.

PAROXYSMAL HEMOGLOBINURIA

By Robert A. Cooke, New York

American Journal of the Medical Sciences, Aug., 1912

Cooke reports a very interesting case, giving all details as to blood-examination, urine, cystoscopic, etc., and then considers the disease under the following headings:

1. Demonstration of the autohemolysin.
2. Absorption of the auto-antibody from inactive serum.
3. Dissociation of corpuscle anti-body combination.
4. Absorption of complement from active serum.
5. Action of complement on red-blood cells sensitized with inactive hemolytic serum.
6. Mode of action of the autohemolysin.
7. Etiology of paroxysmal hemoglobinuria.

Cooke reviews the literature in each instance and gives the result and methods of his own experiments in detail, and as a result he comes to the following conclusion or summary:

1. The serum contains a complex hemolysin capable of dissolving the red blood-corpuscles of the individual himself or other individuals by means of the cold-warm experiment. Positive results were obtained in all of the twelve examinations made at different times.

2. Auto-antibody is absorbed from serum in the absence of complement, and on the elevation of temperature is more or less completely but slowly dissociated.

3. Complement is absorbed from active serum on exposure to corpuscle in the cold. It will join with antibody after the latter has united with corpuscle, but this union takes place solely under the influence of cold.

4. Corpuscles sensitized with inactive serum show but slight hemolysis on the addition of complement as a result of complementoid inhibition.

As a result of clinical observation, the Wassermann reaction, the luetin test, and the serological studies in metasyphilitic disease, it seems safe to say that syphilis is the most important, possibly the only, etiologic factor in paroxysmal hemoglobinuria, but there are as yet no observations on the presence or absence of the hemolysin after the disappearance of the Wassermann reaction as a result of anti-syphilitic treatment.

John Eldon Hynes.

SYMPTOMATOLOGY OF HYPERTHYROIDISM

By George Dock

New York State Journal of Medicine, Sept., 1912

The author advocates the use of the term *hyperthyroidism* in preference to Graves' disease or exophthalmic goiter. Amongst its chief symptoms stress is laid upon (1) enlargement of the thyroid gland (in recognizable cases he has found only one in which no swelling could be made out); (2) tachycardia with hypertrophy and dilatation of the heart and a tendency for the apex to be high up owing to the high diaphragm; (3) sensation of warmth and subjective improvement in cold weather; (4) nervous symptoms, ranging from mild depression or exaltation to melancholia or dementia; (5) disorders of sleep, up to severe insomnia; (6) muscular tremor and muscular weakness; (7) emaciation.

Of less importance are (1) the eye-symptoms because of their frequent absence (in one-fourth to one-third of all cases) and late appearance, and also because it is becoming more probable that exophthalmos is not due to hyperthyroidism directly, but to irritation of the adrenals by the thyroid disease; (2) gastro-intestinal symptoms, unless there are crises; (3) fever; (4) pigmentary changes in the skin.

Attention is drawn to the possibility of hypothyroidism in all cases of hyperthyroidism. This may perhaps be explained by the improvement noted in some cases of exophthalmic goiter by thyroid treatment, or under iodine. So, too, the intense physical depression, lessened sweating, and peculiar loss of hair occasionally seen. In such cases the author believes it possible that a degenerative lesion or hypofunction may cause the hyperfunction. E. T. F. Richards.

CERTAIN FORMS OF FEVER OF OBSCURE ORIGIN IN INFANCY AND CHILDHOOD

By C. Paget Lapage, M.D., M.R.C.P.

Reprinted from the *British Medical Journal*, June 29, 1912

Fever in children which has no obvious cause on clinical examination, often requires the process of exclusion for diagnosis. Post-influenzal conditions may cause such fever. Caseous glands, either bronchial, mediastinal or mesenteric are often the causes. Rheumatism, accompanied with myocarditis, endocarditis or pericarditis, may cause prolonged fever and must be distinguished from osteomyelitis, as well as from erythema

nodosum. Such fever may occur with leukemia and Hodgkin's disease.

One of the most common causes to which the author wishes to call especial attention is bacilluria or pyelitis. In such cases potassium citrate is recommended most strongly and hexamethylenamine. Digestive disturbances may be the source of the rise of temperature, as well as lack of food which may cause the so-called inanition fever. A state of chronic intestinal indigestion is a very common cause of fever in young children. Tuberculous meningitis may be of slow onset, and the cardinal symptoms may take a long time to develop. The meningococcus may also give rise to a low form of meningitis.

(The author does not attempt to deal with all the obscure causes of fever in childhood, but simply those which are at times obscure and have come within his experience.) J. P. Sedgwick.

ZWEI TÖDLICH VERLAUFENE FÄLLE VON PILZVERGIFTUNG. MILCHSÄURE UND. VERMEHRUNG DER AMINOSÄUREN IM URIN

By Dr. Walter Frey,

Konigsberg, 1 pr.

Zeitschrift für Klinische Medizin, 75 Bd., H. 5, u. 6

Very little advance has been made in the past thirty years in the study of mushroom poisoning. The clinical symptoms were well understood and accurately described, much more so than autopsy findings. The nature of the toxin causing the active symptoms is almost unknown.

Frey's study is based on two pronounced and fatal cases, in both of which complete post-mortem examinations, as well as chemical examination of the excreta, were possible.

Based on symptoms alone, three forms of mushroom poisoning are generally recognized: the intestinal, hematogenous, and cerebral.

The Russula genus of mushrooms is particularly liable to produce intestinal symptoms. Anatomically, there is intense inflammation of the intestinal mucosa.

The hematogenous form frequently occurs after eating improperly prepared edible mushrooms. Jaundice and hemoglobinuria are the predominating symptoms. The toxic ingredient is volatile, very soluble in hot water, and therefore very easily removed. The poisonous agent in these species is helvella acid.

The cerebral form of poisoning frequently follows the eating of some forms of agaricus, the ordinary toadstool. Staggering, delirium, disturbance of vision, and in fatal cases, tonic and clonic convulsions are the pronounced symptoms.

The poisonous agent is muscarin and trimethyl ammonium bases, such as cholin, neurin, kornutin, and betain.

In Frey's two cases, the mushroom eaten belonged to the Russula species.

The toxic symptoms developed after a meal that consisted of mushrooms warmed over from a previous meal.

At autopsy, one of the cases showed pronounced fatty degeneration of the liver, so much so that it resembled the liver of phosphorus poisoning. In this connection the chemical finding proved very interesting. In the case with liver degeneration, the amino-acid excretion was extraordinarily increased.

Frey sees a possible connection between hyperacidaminuria and disturbed liver function.

Lactic acid was also demonstrated in appreciable amounts in the urine. Contrary to the conception of some authors, Frey considers this an oxydation product of amino-acids. Diminished power of oxydation is probably responsible for the appearance of both substances in the urine.

Frey's observations are the first of the kind recorded.

F. W. Schultz.

NEOSALVARSAN

By James McIntosh, M. D.
Paul Fildes, M.B.
H. B. Parker, M.R.C.S.

Reprinted from the *Lancet* (London), July 13, 1912

The writers draw attention to certain advantages possessed by neosalvarsan: Its increased solubility, neosalvarsan dissolving readily in distilled water to produce a neutral solution; its greater ease of preparation, and the practical absence of any toxic symptoms following its injection.

The direct destructive power of neosalvarsan and salvarsan was compared in a series of observations made on trypanosoma brucei. A cubic centimeter of increasing dilutions of neosalvarsan, on the one hand, and of salvarsan on the other, was placed in a series of test-tubes, and to each was added one drop of rat-blood containing a large number of trypanosomes. The motility of these organisms was then examined from time to time. As determined by this test the authors found that the parasiticidal power of neosalvarsan was five to ten times more active than that of salvarsan.

The authors mention that the fever sometimes occurring several hours after an injection of salvarsan, especially in tertiary cases, is also observable after the use of neosalvarsan. They advance the interesting view that such fever is not an expression of the toxicity of the drug, but "perhaps rather a syphilitic anaphylactic phenomenon comparable to the fever following old tuberculin."

Like Schreiber, in whose hands rested the clinical application of neosalvarsan on 230 patients, they have discontinued the intramuscular method of injecting neosalvarsan. Severe pain, though not so great as in the case of salvarsan, and persistent induration follow such injections and thus greatly discount the supposed advantage of a more lasting therapeutic effect.

Neosalvarsan therefore, by reason of its diminished toxicity to man, allows of a more intensive treatment of early syphilis. The authors recommend that in primary syphilis two initial doses (separated by a one-day interval) be given and followed by a third dose at the end of four weeks. In secondary syphilis three injections are given at one-day intervals and then a fourth eight weeks later. In tertiary cases the treatment should be repeated every two or three months after the initial course until a negative Wassermann has been obtained.

Schreiber advocates large doses, giving as an average course, quantities equivalent to 0.6, 0.8, 0.9, and 1.0 grams of salvarsan in seven days; that is equivalent to 3.3 grams of salvarsan, about 5.0 grams of neosalvarsan. E. T. F. Richards.

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FAILURES IN EDUCATIONAL METHODS

A most gratifying incident occurred at the convention of the Eighth District of the Federation of Women's Clubs, which met at Hibbing, Minn., May 20th, when a discussion was precipitated by women as to the cause of failure in educational methods.

One woman, Mrs. Coventry, had the temerity to assert that the University of Minnesota and the entire public school system are faulty, in that they do not accomplish a reasonably satisfactory educational standard, and that "children nowadays are as much alike as Chicago sausages," and that graduates often fail in the spelling of simple words, and that independence and individuality of the child are repressed. That the present system of education is too machine-like and that the brightest children are held back waiting for the retarded child to catch up, is an argument that appeals to thinking men. Something is wrong beyond a doubt, but it is not always easy to determine just where the fault lies.

It was claimed by the speaker that better results could be accomplished if a teacher had fewer pupils at a time, and to them she could give more of the essentials that stimulate the pupil to think, reason, and judge; in other words, to establish a mental process that would be fundamental and lasting. There are too many pupils for each teacher, and the instruction must obviously be routine and restricted, in order that a definite scheme may be carried out. This scheme is usually arranged and ordered by the authorities, and the teacher cannot safely depart from the line drawn.

The statements made by Mrs. Coventry brought out other factors, which must be considered in order to arrive at a satisfactory conclusion. Heredity is a factor in retardation; home environment, criticism, and personal prejudices of parents and teachers; politics; and the money question are important in considering educational methods. There is no doubt that in many cases the parents and the indifference of the home influences are the principal causes of failures. The time is propitious for a campaign of education of the parents in the early training of the child and the inculcation of responsibilities while the mind of the child is plastic. If greater care were exercised in the home in the development of the physical organism and the moral sense, the work of the educator would be less difficult, and the end-results would be a rounded out and a better balanced and receptive mind.

The influences in the home are often at loose ends, and the child who has a reasonably normal apparatus is permitted to run slack.

Training and discipline are neglected before the school life is begun, and if the start is wrong it is quite likely to continue, unless a forceful teacher sees the opportunity to stimulate advancement and can in some way carry it into the home. Many children are saved from retardation because the parents recognize the improved conditions, but an unnecessary number of children are allowed to drift because the parents are inattentive, careless, and indifferent to consequences.

Then, too, many children are ruined morally from contact with those that are inherently unstable, or who acquire a moral instability.

Physical and moral character-building is fundamentally necessary, and this cannot be attained without physical and moral discipline.

It is gratifying that the Club women are discussing the subject, as they are dealing with formative periods in child life, and their discussions will permeate the home life and in time will stimulate laggard parents to exercise their moral obligations to their children.

If this utopian age can be reached there will be brighter, more thoughtful children, who will grow up into useful instead of mediocre citizens.

Until this period is reached there will be the same number of moral and intellectual degenerates, venereally saturated, and the same number of clandestinal pregnancies among high school and university undergraduates. The unfit will live to procreate their kind, and criminals and defectives of all grades will multiply unless the mother and father wake up to assume their responsibilities.

The people are more or less indifferent now, but some day they will realize the needs that must be met to perpetuate a normal and healthy race of children.

The real remedy lies in the home, and the educational methods will be changed only to meet the demands.

POPULAR VOTES ON MUNICIPAL SANITARY NEEDS

An example of the uncertainty of popular voting by unenlightened people on municipal questions was recently illustrated in Los Angeles.

An ordinance was introduced making the tuberculin test for milk compulsory. It was opposed by antivivisectionists, antivaccinationists, and the veterinary and dairy interests, and finally, through the referendum, it was put up to the people, who defeated the ordinance by a majority of 5,152. This shows what the "referendum" may do. Perhaps after a time a "recall" may change the situation.

In Montclair, N. J., the Board of Health and the Borden Condensed Milk Company have been at war for three or four years on the tuberculin test. The Board spent nearly $7,000 in cash for litigation and finally won.

The Borden Company withdrew its appeal and suit in the United States Court and began giving its customers the choice between milk from tuberculin-tested cows and milk which had been pasteurized. The Borden Company is now one of the strongest allies of the Board, and Montclair will hereafter have clean and safe milk.

A WORD OF SUGGESTION

It certainly is not amiss to suggest to the local medical men and their wives that the entertainments that are to be given when the American Medical Association meets in Minneapolis from June 13th to 20th, inclusive, are for the guests from out of town. The entertainments which are under way are very expensive and mean a good deal of sacrifice on the part of doctors, doctors' wives, and others who contribute time, money, and work. The public entertainments are intended for the members of the A. M. A., and this, of course, includes many physicians from Minneapolis and St. Paul. In order that the out-of-town members may be courteously received it will be the duty of members of the various committees to see that the visitors are given first chance at all functions. This applies particularly to the receptions, teas, luncheons, and automobile rides arranged by the ladies for the visiting ladies. It seems rather unnecessary to suggest that the local women, and the wives of local doctors, do not monopolize the places intended for those from the North, East, South, and West. In another city not long ago the city members were very much in evidence and actually devoured most of the good things provided and to the great discomfort of the visitors.

The temptation is very great for those who have made contributions of any kind to monopolize space provided for others, but the doctors and women of Minneapolis will see that their guests are looked after, directed, and delightfully entertained, as is the custom of our citizens.

On the afternoon of Tuesday the 17th, organ recitals and tea will be given at the residences of Mrs. Thomas Lowry, on Hennepin Avenue, and Mrs. W. A. Jones, on Ridgewood Avenue. The two houses are open in order that the visitors may not be crowded into one house.

Wednesday is Minnetonka Day. Special cars will be provided by the Twin City Rapid Transit Company, and special boats on the lake will take guests to the Lafayette Club at Minnetonka Beach, where luncheon will be served, and a special train over the Great Northern road will bring the party back to the city at a convenient hour in the afternoon.

On Thursday the ladies are to be taken or directed to the Interlachen Club for a field day. This Club is accessible by the Como-Hopkins car line. The ladies who are guests there may play golf, tennis, bridge, and lunch and have tea later in the day on the spacious grounds or in the Club House.

Thursday and Friday morning automobiles will take the visitors over the boulevards and about the city, and it is particularly requested that seats in the automobiles be reserved for the ladies who desire to see the city on their first visit.

The President's reception Wednesday evening, June 18th, at the National Guard Armory build-

ing, near the Plaza Hotel, on Hennepin Avenue, will be open to all members and their guests. Music by Rossiter's band will be provided for the reception and dance; and Dick's orchestra will furnish music in the Annex, which will be converted into an in-door garden.

St. Paul will entertain the visitors at the Auditorium building on Thursday evening at a reception and dance.

It is urged upon the women of Minneapolis to see that the visiting women are royally entertained.

THE AMERICAN MEDICAL ASSOCIATION MEETING

Minneapolis is to undertake for the first time the entertainment of the American Medical Association. The officers of the A. M. A. have been in Minneapolis at various times in consultation with the members of the different committees and are very much pleased with the arrangements. The buildings on the Campus which comprise the medical departments of the University are particularly well adapted for meeting-places, and two lines of trolley cars run through Minneapolis, and coming from St. Paul will bring the members of the Association into close touch with the meeting-places.

The various scientific and commercial exhibits and the bureau of registration, which is in the Armory on the University Campus, will all be worth investigation, and so far as outward appearances show the meetings should be very successful.

The preliminary program is out and promises much for the completed program, which will be issued at the registration building.

There are many beautiful places in the Twin Cities and around Minneapolis that will afford amusement and entertainment for the visitors. A small proportion of those who come expect to make their trip an outing, a change, and a rest from their labors, and for the social advantages that are always enjoyable at the meetings of the A. M. A.

The president's reception, which is given on the night of Wednesday, June 18th, is to be held at the National Guard Armory, a very large building, the main room of which will be given over to the reception committee and guests, and a military band will furnish the music. The Annex of the Armory, which has a large floor space, is a sort of an in-door garden, and there the guests will be entertained by Dick's orchestra.

Judging from inquiries at the general office of the committee, the hotel space has been pretty well engaged, and it may be somewhat difficult for some of the guests, who have not already engaged quarters, to get something that is wholly desirable, but the committee, through its chairman, Dr. S. Marx White, has something left over, and it is probable that all visitors will be well cared for.

Minneapolis is the center of the far west and doubtless, after the meeting has adjourned, many of the eastern members will take advantage of their opportunities and go out to the Yellowstone Park, Alaska, and the Canadian Rockies.

The affiliated societies of the A. M. A. will hold their meetings before the 17th of the month. The American Academy of Medicine meets at the Leamington on the 13th and 14th; and the American Medical Editors' Association meets at the Radisson on Monday, the 16th, for a one-day session, with a banquet at some hotel in the evening. Other societies will hold meetings on the 13th, 14th, and 16th; and Sunday will be given over to the public-health work, the various pulpits in Minneapolis being occupied by distinguished medical speakers. The various alumni meetings are to be held as usual; and although the time and place has not been definitely set, the luncheons usually occur on Wednesday at 1 o'clock.

MISCELLANY

IN MEMORIAM

ADOLPH ODIN BJELLAND

The following resolutions were adopted by the Blue Earth County Medical Society:

WHEREAS, it has pleased God in His infinite wisdom to remove from our midst, our well-beloved brother and co-worker, Adolph Odin Bjelland.

Therefore be it resolved, that we, the physicians of Mankato, deplore his untimely death at the noon of his life and the height of his usefulness, and that we feel deeply the loss of an honorable, capable, upright physician, a sympathetic friend, a wise counsellor, and a good citizen.

RESOLVED, further, that we tender our sincere sympathy to his sorrowing wife and children in their deep affliction.

RESOLVED, further, that these resolutions be spread upon the records of the Blue Earth County Medical Society, and that copies be sent to his family and to the newspapers of the city and to the State Medical Journal.

G. A. DAHL, M.D., Secretary.

SYNOPSIS OF THE MINNESOTA "TUBERCULOSIS CONTROL LAW"

The law either requires or prohibits the following seven things. Some of them have been heretofore subjects of special regulations of the State Board of Health, but several years' experience has shown that to secure enforcement the State Board of Health regulation must be backed up by statutory law.

1. Requires reporting of all cases known to physician to state or local health board.

2. Prohibits penal and charitable institutions from housing consumptives in the same room or ward with other inmates.

3. Gives the local health officer the right, subject to the approval of the county board and *much aggravated circumstances* to order the detention in an institution of a consumptive who is a distinct unavoidable menace to his associates.

4. Teachers and pupils complained about as consumptives must obtain a statement from local board of health that he or she is not a menace to others or leave school.

5. Requires disinfection and renovation after death or removal of a consumptive.

6. Provides for placarding under certain circumstances.

7. Prohibits the disposal of sputum (spit) in such a way as to cause offense or danger to any person.

THE NEW COLLEGE OF SURGEONS

An American College of Surgeons was organized at a meeting in Washington, D. C., on May 5th. Four hundred and fifty prominent surgeons of the continent of North America came together at the invitation of an Organization Committee which was appointed by the Clinical Congress of Surgeons of North America at its meeting in November, 1912. This committee consisted of Edward Martin of Philadelphia, Emmet Rixford of San Francisco, John B. Murphy of Chicago, Rudolph Matas of New Orleans, Albert J. Ochsner of Chicago, Charles H. Mayo of Rochester, Minn., Frederic J. Cotton of Boston, George Emerson Brewer of New York City, J. M. T. Finney of Baltimore, W. W. Chipman of Montreal, George W. Crile of Cleveland, and Franklin H. Martin of Chicago.

The invitations were extended by the Organization Committee after a carefully prepared campaign in which each large university city on the continent was visited by a member of the committee who met, in person, a group of selected men brought together by a committee of three in each locality, which committee had been authorized by the Organization Committee to extend an invitation to the surgeons in their locality to meet the representative of the Organization Committee. Of the five hundred men invited to the meeting in Washington, four hundred and fifty responded, representing all branches of surgery and surgical specialties. The surgeons responding to the invitation were designated the Founders of the College.

The call of the meeting was read by Franklin H. Martin, Secretary of the Committee. This call summarizes the work for which the Committee was authorized:

First. To formulate a minimum standard of requirements which should be possessed by any authorized graduate in medicine who is allowed to perform independently surgical operations in general surgery or any of its specialties.

Second. To consider the desirability of listing the names of those men who desire to practice surgery and who come under the authorized requirements.

Third. To seek the means of legalizing, under national, colonial, state, or provincial laws, a distinct degree supplementing the medical degree which shall be conferred upon physicians possessing the requirements recognized by this law as necessary to be possessed by operating surgeons.

Fourth. To seek co-operation with the medical schools of the continent which have the right to confer the degree of M. D. under the present recognized standards, and urge these colleges to confer a supplementary degree on each of their graduates who have, in addition to their medical course, fulfilled the necessary apprenticeship in surgical hospitals, operative laboratories, and actual operative surgery.

Fifth. To authorize and popularize the use of this title by men upon whom it is conferred, and its use should especially be urged in all directories of physicians in order that the laity, as well as medical men, can distinguish between the men who have been authorized to practice surgery and those who have not.

The net result of the Committee's efforts is that five hundred surgeons of all specialties, representing every large center of population, every important university city with a teaching faculty of medicine, every special and general society representing a specialty of surgery, all the important surgical clinics and hospitals, besides many independent surgeons from all portions of the North American continent, have consented to become founders of the organization under contemplation, and of this five hundred fully four hundred and fifty are here at this hour ready to fulfill their obligation.

The Founders' Organization was then completed by the election of Edward Martin as Chairman and Franklin H. Martin as Secretary, and the authorization of an order of business.

BY-LAWS

The interest in the By-Laws centered in (1) the name; (2) the object; (3) the forming of the organization; (4) its administrative plans; (5) the meaning of the fellowships; (6) fees; (7) directory; (8) expulsion; (9) standing committees.

1. The name of the corporation is the *College of Surgeons.*

2. The object of the College shall be to elevate the standard of surgery, to provide a method of granting fellowships in the organization, and to formulate a plan which will indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery as a specialty.

3. The corporation is to be known as the College. The College shall consist of all members of the corportion, to be known as Fellows, and shall vest the general management of the corporation in a Board of Governors, and the Board of Governors shall in turn vest the details of the management in a board of trustees, to be known as the Board of Regents.

4. The Board of Governors shall consist of the five hundred surgeons invited by the Organization Committee to serve as founders of the College and who have signified their willingness to act in that capacity.

The individuals of the first Board of Governors shall also be known as the founders of the College of Surgeons.

The original Board of Governors shall be divided into three classes to serve one, two, and three years. At the annual meeting in 1914 and at each succeeding annual meeting, the Fellows of the College shall elect fifty surgeons to membership in the Board of Governors, each for a term of three years. Thirty of these are to be elected from a list of nominations consisting of two members each, nominated by the following surgical societies and associations of North America:

American Surgical Association; Section on Surgery of the American Medical Association; Section on Obstetrics, Gynecology, and Abdominal Surgery of the American Medical Association; General Surgical Division of the Clinical Congress of Surgeons of North America; Division of Surgical Specialties of the Clinical Congress of Surgeons of North America; American Gynecological Society; Southern Surgical and Gynecological Association; Western Surgical Association; Section on Surgery of the Canadian Medical Association; American Association of Obstetricians and Gynecologists; American Orthopedic Association; American Association of Genito-Urinary Surgeons; American Laryngological Society; American Ophthalmological Society; American Otological Society.

Twenty members shall be elected at large to represent surgeons of North America not affiliated with the above societies or associations.

The Board of Regents shall consist of twelve surgeons, members of the Board of Governors, elected by the Governors, these to be divided into three classes whose terms of service shall expire in one, two and three years. Their successors shall be elected each for a term of three years. Not more than three of each class of four shall be elected from one country. The Board of Regents is increased to fifteen in number by three officers of the Corporation, the President, Treasurer and General Secretary. The two Vice-presidents are ex-officio members of the Board. The Board of Regents is the administrative body of the corporation, corresponding to a board of trustees in other corporations.

5. The Fellows of the College shall be graduates in medicine, who are legalized to practice medicine in their states and provinces, and who have made an application for fellowship, such application to be endorsed by three Fellows of the College, one of whom shall be a member of the Board of Governors, and who meets the qualification requirements that shall, from time to time, be established by the Board of Regents, and who shall be elected to fellowship by the Board of Regents on recommendation of the Committee on Credentials.

Every Fellow of the College shall be designated a *Fellow of the College of Surgeons* and shall be authorized and encouraged to use the letters F. C. S. after his name on professional cards, in professional directories, and in scientific articles published in surgical literature.

6. An initial fee of twenty-five dollars shall be required of each member of the College on his election to fellowship by the Board of Regents. The annual dues will be five dollars.

7. The Board of Regents shall issue each year a directory containing the names and addresses of the Fellows of the College of Surgeons, arranged by states, provinces, and colonies.

8. Any member of the College may be expelled for unprofessional or other conduct inconsistent with the rules and regulations of this Corporation by a majority vote of the Board of Regents.

9. The Board of Regents shall elect the following standing committees: (1) credentials; (2) legislation; (3) graduate schools and hospitals.

These by-laws were unanimously adopted with the provision that the Board of Regents should make any minor corrections deemed desirable and present such corrections for adoption at the next meeting of the Board of Governors.

OFFICERS ELECTED

President, J. M. T. Finney, Maryland; First Vice-president, W. W. Chipman, Quebec; Second Vice-president, Rudolph Matas, Louisiana; Treasurer, A. J. Ochsner, Illinois; General Secretary, Franklin H. Martin, Illinois.

BOARD OF REGENTS

J. M. T. Finney, Maryland; A. J. Ochsner, Illinois; Franklin H. Martin, Illinois; George E. Brewer, New York; George E. Armstrong, Quebec; John B. Murphy, Illinois; Edward Martin, Pennsylvania; F. J. Cotton, Massachusetts; Herbert A. Bruce, Ontario; C. F. Stokes, Washington, D. C.; William D. Haggard, Tennessee; George W. Crile, Ohio; Robert E. McKechnie, British Columbia; Charles H. Mayo, Minnesota; Harry M. Sherman, California.

SELECTION OF FELLOWS

Much interest was manifested in the method to be pursued in the selection of the members of the Corporation and in the method of conferring fellowships. A series of resolutions covering this subject were offered by the Secretary and adopted.

The prospective Fellows are to be divided into four classes, A, B, C, and D. Classes A, B, and C are by resolution to be admitted without the formality of submitting to an examination under the following resolution:

"Resolved, That the A class shall consist of founders of the College.

"The B class shall consist of the members of the special surgical societies constituting the Congress of American Physicians and Surgeons, and one hundred each, nominated by accredited committees, from the Surgical Section of the American Medical Association, from the section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, from the General Surgical Section of the Clinical Congress of Surgeons of North America, from the Division of Surgical Specialties of the Clinical Congress of Surgeons of North America, from the American Association of Obstetricians and Gynecologists, from the Surgical Section of the Canadian Medical Association, from the Southern Surgical and Gynecological Association and from the Western Surgical Association.

"The C class shall consist of surgeons of prominence of five years in the practice of surgery or a surgical specialty and who, in the opinion of the Committee on Credentials, are eligible for fellowship in the College without formal examination."

For all others, coming under Class D, the following resolution was passed:

"Be it further resolved, That the Board of Regents, through the Committee on Credentials, limit the admission of the Fellows to classes A, B, and C until the Board of Regents formulates a standard of requirements for class D and reports the recommendations back to the Board of Governors for approval at the meeting to be called by the Board of Regents in Chicago, November, 1913."

APPLICATIONS FOR FELLOWSHIPS

It will be the spirit of this Association to open the fellowship to all competitors in surgery without favor. Scientific attainments, surgical ability, unquestioned moral character, measured by the College's standards, shall constitute the measure for fellowship.

There are many hundreds of surgeons on the continent, who are not included in classes A and B, who fall into the C class. Applications from these men will be welcome and their names will have the most careful consideration by the Committee on Credentials.

All applications for membership should be forwarded to the Secretary of the Corporation. It would add to the ease of the work of the Committee on Credentials if references in the way of vouchers or recommendations from one or more well known surgeons accompany each application for fellowship.

FORMAL CONFERRING OF FELLOWSHIPS

The first convocation for the formal conferring of fellowships will occur in November, 1913, at a time and place that will be designated later. The first directory of Fellows will be distributed at that meeting. For that reason the applications for fellowships on the part of A, B, and C classes should be filed as promptly as possible in order to facilitate the correcting of lists for publication.

BOOK NOTICES

THE IMMEDIATE CARE OF THE INJURED. By Albert S. Morrow, M.D., Adjunct Professor of Surgery in the New York Polyclinic. Second edition; revised; octavo of 354 pages, with 242 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $2.50 net.

This volume is written for the guidance of the layman in rendering first aid in cases of accident, and its primary object is to teach him how to render temporary assistance to the sufferer until the arrival of medical aid.

This rather difficult subject is treated simply and concisely by the author, and in such manner that it can be readily understood by one who has no medical knowledge.

The first portion of the book is devoted to a short treatise on the anatomy and physiology of the human body. This section of the book is, of necessity, brief, but so written as to give accurate and helpful information.

The second division treats of bandages, dressings, and practical remedies, and contains many useful suggestions as to the application of dressings. Of especial interest in this division is the chapter on antisepsis and disinfection.

The final division of the book treats of accidents and emergencies, where such subjects as hemorrhage, wounds, burns, fractures, dislocations, asphyxia, and poisoning are described and the accepted methods of treatment detailed.

The chapter on the transportation of the injured is timely and should be of special value to those who are called upon to render assistance in times of accident.

The entire book is well illustrated, a factor which aids materially in the explanation of points otherwise not clear. —HARE.

THE PRACTICAL MEDICAL SERIES. Vol. 6. General Medicine. Edited by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D. Series, 1912. 10 vols. $10.00. The Year Book Publishers, Chicago.

Practitioners are so familiar with these little blue volumes, which come at monthly intervals, covering the entire field of medicine and surgery, that little can be said in the way of review except to call attention to the fact that in this series, which can be purchased singly or in sets, a busy practitioner is able to find all that is new and worthy in any special line which has appeared in the last year. In an age in which medical literature is so voluminous that no one is able to cover the entire field, such a work is extremely valuable.

The present volume covers infectious diseases and diseases of the alimentary tract, liver, pancreas, peritoneum, and abdomen. Under diseases of the abdomen a well written review by J. Phillips gives a very good summary of the diagnosis of acute conditions of the upper abdomen. —ANNIS.

INTERNATIONAL CLINICS. Edited by Henry W. Cattell, A. M., M. D., Philadelphia. Vol. II. Twenty-second series, 1912. J. P. Lippincott Company, Philadelphia. Price, $2.00.

The present volume of this well-known series contains, among other interesting articles, a lecture on the present status of the epidemic of poliomyelitis by Simon Flexner and a very well written article on the National insurance act for the United Kingdom. The principal provisions of this act are described and shed considerable light on the question which has caused so much controversy in England. The chief feature of the volume, however, is a symposium on anesthesia, which was given at a meeting of the Philadelphia County Medical Society in April, 1912. These papers cover the entire field of anesthesia, both local and general. The only criticism is that the last article by Irwell, called "The Case Against the Nurse Anesthetist," does not convince one who has been accustomed to the nurse anesthetist.

The whole volume maintains the high standard which these series have established. —ANNIS.

INTERNATIONAL CLINICS. Edited by Henry W. Cattell. Vol. 1, twenty-third series. 8 vo., 302 pages, with 32 illustrations. Cloth, $2 net. Philadelphia and London: J. B. Lippincott Company.

This series enjoys a well-deserved popularity by reason of many valuable suggestions from close-observing and clear-speaking clinicians. The articles collated in this volume well reflect the medical advance along various lines and the clinical value of pathological principles.

By far the most brilliant article of the volume is the treatment of Pott's disease by bone-grafting. Every surgeon will certainly read this article with pleasure.

The treatment of aneurism through the spinal reflexes is altogether new and ingenious, with a possibly wider application to the circulation than is generally suspected.

The great field of physiologic chemistry very forcibly appears in studies of auto-intoxications, sensitization to serum therapy, and Bence-Jones proteinuria.

The obscure pathology of poliomyelitis, scarlatina, and gall-bladder disease, is reflected in the general measures employed rather than a priori means of relief.

Sociologically, studies of the defective child and race-deterioration bring home to us the problems of maturing civilization. That one-third of American school children are retarded and 300,000 defective is sufficiently serious and will be rapidly rendered more so by the entrance of women into industry obviously at the expense of the child.

A series of papers on electricity and radiant energy begins in this volume and indicates a valuable scientific treatment of the field continuing through the year.

No clinical volume would be complete without a contribution to appendicitis. Tenderness at the recto-sigmoid valve in obscure cases is a valuable diagnostic landmark well oriented from a series of 200 cases.

One-third the volume is devoted to the progress of medicine in 1912 and is admirably done. This résumé touches almost every human activity and reminds us how rapidly medicine is coming to share the largest burdens of society arising from our physical, economic, and social relations. —Morris.

NEWS ITEMS

Dr. B. A. Smith has moved from Biwabik to Crosby.

Dr. J. A. Rippert has moved from Hibbing to Chisholm.

Dr. H. A. Biorn, of Ada, Minn., will move to Hatton, N. D.

Dr. D. M. Strang has moved from Northfield to Sprague, Wash.

Dr. C. D. Whipple, of Minneapolis, has returned from Vienna.

Dr. F. W. Freyberg has moved from Mitchell, S. D., to Aberdeen, S. D.

Dr. R. J. Jackson has moved from Rapid City, S. D., to Sioux City, Iowa.

Dr. P. McHugh, a recent graduate of Marquette, has located at Crookston.

Dr. J. E. Rheim, a 1910 graduate of Northwestern, has located at Grasston.

Dr. Alex Dockstader has given up practice at Zumbrota and returned to Hastings.

Dr. W. H. Bodenstab, of Bismarck, N. D., is attending clinics at Johns Hopkins.

Dr. Nels P. Nelson was fined last month $50 for practicing in Fargo, N. D., without a license.

Dr. J. H. Delaney, of Bozeman, Mont., has sold his practice to Dr. C. F. Jump, and will retire.

Dr. H. H. Hanson has moved from Sedan to Clarkfield, where he was located several years ago.

Dr. Charles P. Bunsen, an old-time physician of Winona, died last month at the age of 83 years.

The new $40,000 hospital at Devils Lake, N. D., is nearing completion and will be open early in July.

The State Medical Association of North Dakota has driven most of the fake doctors from that state.

A few Minnesota physicians have been fined small amounts for failure to make reports on vital statistics.

Dr. George E. Miles, of Minneapolis, pleaded guilty to a charge of practicing without a license and was find $75.

Dr. J. H. Titus has sold his practice at Osakis to Dr. E. Haberman, of De Smet, S. D. Dr. Titus will locate in the west.

Dr. A. G. Allen, who has practiced in Deadwood, S. D., for twenty-one years, will move to Mitchell, S. D., this month.

Murray County is to have a hospital that will at least fairly meet its needs. A residence at Slayton is being remodeled for this purpose.

Dr. R. A. Peterson, of Vesta, has purchased the hospital building formerly occupied by Dr. Gray and will put it in good shape for hospital purposes.

The people of Otter Tail County are rejoiced over the new sanatorium for tuberculous patients which the County is building, under the new law, with state aid.

The N. W. Minnesota Hospital Association has opened a hospital in Beaudette, which will be in charge of Dr. Osborne, who was formerly located at Beaudette.

Dr. James P. Caldwell, Jr., of Coleraine, was married last month to Miss Nettie Hazel Sylvester, of Plainview. Dr. Caldwell is a graduate of Hamline, class of '09.

The Dell Rapids (S. D.) Hospital Association

has been formed with a capital stock of $40,000. When one-half the amount is raised, work will be begun upon a hospital building.

The fifth class in the nurses' training course at St. Mary's Hospital, Rochester, was graduated on May 15th, and nineteen nurses received diplomas. Bishop Heffron gave the address to the class.

The St. Paul Baby Welfare Association will maintain ten beds in Bethesda Hospital for neglected babies. The Society's first year ended last month, and its work has been most beneficent and eminently successful.

The eight-story building for the Nurses' Home of the Minneapolis City Hospital will soon be completed. It will furnish each nurse a separate room, and with its attractive parlors and library, it will make a real home for the nurses.

Dr. M. J. Rand, of Sauk Rapids, has sold his practice to Dr. J. P. McDowell, of Kimball. Dr. Rand is obliged to seek a milder climate and will locate in the south or southwest. Dr. Rand refused a well-paid government position in Montana.

The Black Hills (S. D.) District Medical Society met last month at Deadwood. "Fractures of Long Bones" was the subject for discussion. A visit was made to the Homestake Hospital to witness a demonstration and exhibition of cases by the staff.

The building of the Thomas Memorial Hospital, of Minneapolis, possesses sufficient merit to find a place in the volume of "Modern Hospitals," just issued by *The American Architect*, of New York. It is the only hospital building west of Detroit receiving this complimentary notice.

The North Dakota State Medical Association held its annual meeting in Minot on May 7th and 8th. We shall publish the transactions in full in an early issue. The following officers were elected: President, Dr. Murdock MacGregor, Fargo; first vice-president, Dr. R. H. Beek, Lakota; second vice-president, Dr. V. H. Stickney, Dickinson; third vice-president, Dr. Andrew Carr, Minot; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. C. S. Crane, Grand Forks; delegate to the A. M. A., Dr. J. Grassick, Grand Forks; alternate, Dr. B. McK. Lancaster, Crosby. The next meeting will be held at Grand Forks.

FOR SALE

An X-ray machine: Cost $1,000; will sell for $250. A safe: 26x30x36; cost about $125; will sell for $45. An apparatus for administering hot air; will sell for $8. An oak roll-top desk: large size, cost $65; will sell for $35. An operating-chair; will sell for $25.

These things were the property of the late Dr. T. M. McLean, of Fergus Falls, Minn., and must be sold at once. Address Mary H. M. McLean, Fergus Falls, Minn.

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Will substitute for some busy physician or surgeon for a few months in Minnesota or North or South Dakota. Am an all around good physician and surgeon with best of recommendations. Address C. O., care of this office.

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I desire to purchase a practice in Minnesota or North or South Dakota which must pay over $3,500. Will pay a fair price in cash for the same. Give full particulars. Address C. C., care of this office.

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Norwegian physician wanted. For particulars address Chas. N. Taber, Druggist, Reynolds, N. D.

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One bacteriological incubator. Copper, asbestos covered, enameled water-jacket, with thermo-regulator and safety-lamp complete. Inside dimensions 9x9x12 inches, in good condition. Cost $45, used but little; good as new. Call upon or write Syndicate Bldg. Pharmacy, Minneapolis.

PHYSICIAN'S CHAIR FOR SALE

McDonald leather upholstered physician's chair (Truax, Greene & Co.) in first class order, like new. first check for $20.00 takes it. Address M. B., care of this office.

OFFICE FOR RENT IN MINNEAPOLIS

Physician's office space in new Syndicate Building, Nicollet Ave. frontage; three rooms; reception room together with dentist. Call T.-S., Center 5693.

PHYSICIANS WANTED—LOCUM TENENS

Locum tenens wanted to care for a prosperous village practice of $3,000 during June, July and possibly August. Must answer immediately and be ready to begin work June 1st. Address M. W., care of this office.

PRACTICE FOR SALE

I offer my practice and drug stock for sale. Location, central Minnesota, in rich farming country, thickly settled; Germans; good pay. Inland village, five miles from station; no other physician here. Nearest competition is ten miles north, twelve miles south and nine miles east with unlimited territory west. Have done $3,500 a year; am going to the city. Address, St. Martin's Drug Store, Zion P. O., Minn.

ASSISTANT WANTED AT ONCE.

A recent graduate with hospital experience as assistant in busy general and hospital practice. One who speaks Norwegian preferred. Salary with rapid opportunity for advancement. Address B. W., care of this office.

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Every intelligent physician will understand the force of all the above when he reads the literature of extract of Red Bone Marrow.

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THE DOCTOR'S RIOT

Messrs. Reed & Carnrick have issued a small pamphlet containing a photographic reproduction of the New York Packet's account of "The Doctor's Riot," which occurred in New York City on April 14, 1788, growing out of the not uncommon practice of stealing bodies from cemeteries for dissection. The riot came so near being a serious affair that the state troops were called out. A picture of the New York Hospital of the date, around which the riot took place, is given. Such brochures are worth while and are highly appreciated.

SIMS' MALTED WHEAT

All physicians who desire to have their patients use a limited meat diet in summer should remember that Sims' Malted Wheat contains enough protein to make it an excellent substitute for meat, while it is delicious in flavor and especially easily digested, thus making it the best of cereal food for children, convalescents, and nursing mothers.

THE EXHIBITS AT THE A. M. A. MEETING

The Exhibit at the A. M. A. meeting of all the manufactured products, appliances, etc., that interest physicians and surgeons will be especially fine this year, and none will be as complete, as interesting, as comprehensive and valuable as that to be made by Messrs. Noyes Bros. & Cutler. It should be both seen and studied.

DR. ABBOTT'S HOSPITAL

One of the things worth seeing by physicians and surgeons visiting Minneapolis next month is Dr. A. W. Abbott's hospital.

When this hospital was built, about a year ago, the central thought was to make it a model, but not to build extravagantly or ostentatiously. The result is a hospital with nothing wanting that the best surgery demands, and yet it is a building that preserves all the home features so essential to the comfort and welfare of its patients.

All visiting physicians and surgeons in Minneapolis next month, or at any time, will receive a hearty welcome at Dr. Abbott's hospital.

NOVOCAIN

T. Turner Thomas, of the University of Pennsylvania, in discussing "Local Anesthesia for Operations in the Trigeminus Region" (Keen's *Surgery*, vol. vi, p. 416) says: "The anesthetization of large nerve-trunks by perineural injection of cocain solution was only possible, or at least practicable, on parts of the body on which the Esmarch constriction has made the method applicable to other parts of the body. The substitution of novocain for cocain permits the employment, without danger, of a much larger quantity of the anesthetic in the neighborhood of a nerve-trunk or to interrupt the conduction of a nerve for a much longer time."

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REMARKS ON THE PATHOLOGY OF THE OVUM, WITH REPORT OF THREE CASES*

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MINNEAPOLIS

The importance of uterine disease in the production of pathologic conditions in the developing ovum cannot, at this time, be accurately determined. One point is certain, and that is, that we as physicians should do all in our power to prevent uterine infections, especially at the time of labor, miscarriage, or abortion, when such infection is especially apt to occur. This is an old piece of advice. It was presented first with the idea of lowering the mortality, then the morbidity, of the mother. I wish to advocate it strongly in behalf of the mother and also of subsequent offspring. Not only does sterility result from these inflammatory conditions, but also death and disease of the ovum, which may result in miscarriage or produce malformations or less evident disease that may remain with the individual during life. This emphasizes the seriousness of any infection of the female genitalia, whatever the source.

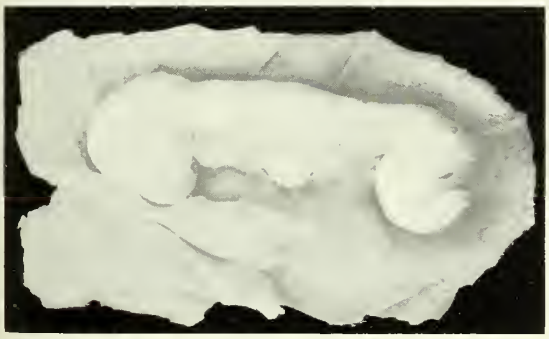

Fig. 1—Case 1.

A little is known regarding this subject, but there is much more that is still hidden from our knowledge. Granville, over seventy-five years ago, recognized the importance of this subject and made important contributions to the study of abortion by reporting careful observations with drawings of forty-five cases. This work was published in 1834.

Fig. 8—Case 2.

He believed that the maternal and fetal circulations were separate and that the fetus formed its own blood. Arguing for the presence of blood-vessels in the chorion, he wrote: "The vascularity of the chorion is further proved by its diseases, chiefly of an inflammatory character, ending in the thickening of its texture."

In describing one of his specimens, he stated

*Author's Thesis, read before the Minnesota Academy of Medicine, May 7, 1913.

that "There can be little doubt but that intra-uterine inflammation, extended to the involucra of the ovum, has produced, first, its morbid change of structure, and, lastly, its early expulsion from the womb."

A number of men have done notable work along this line, and there will be no injustice to others in mentioning the names of Panum, His, Giacomini, Loeb, and Mall.

On account of the difficulty of recognizing disease of the ovum at any time of gestation, little thought has been given to the fact that the chorion, amnion, and embryo, as well as the placenta, membranes, and fetus, may be subject to disease processes. It is well to note that the reaction of these tissues to disease and injury is not the same as in a more fully developed organism leading an independent existence.

There are two theories of the causation of disease in the ovum—the germinal and the environmental. Each has its adherents. Granville advanced the view that pathological ova developed from normal ones. He reached this conclusion because he had observed that abnormal changes were present at different stages of development. His originally believed in the germinal theory, but later concluded that environment was responsible for most of the changes. More recent studies point to the truth of his conclusions. Mall made a careful study of a number of cases, reaching the same conclusion. The arguments he advanced are as follows:

There is 7 per cent of pathological ova in all intra-uterine pregnancies. In 46 unruptured tubal pregnancies which he examined in early stages, 96 per cent of the ova could be recognized as abnormal. Von Winckel, in a statistical study of live ectopic fetuses removed surgically, found 47 deformed, 12 monsters, and 8 normal. In experimental teratology, a great many malformations have been artificially produced by various measures. Mall, in studying 33 cases which had definite histories, found evidence of local disease in all. He also had 5 sets of 2 pathological ova from each case. In 4 of these the changes in each set were similar.

Various classifications have been suggested. Panum worked out one of the first systems from monsters of the chick embryo. His followed his classification very largely. Giacomini and Mall have both suggested different classifications.

At this time, it will be necessary to outline only one rather briefly, and for this purpose I shall use that suggested by Mall. He recognized four groups.

I. Vesicular forms, in which the umbilical vesicle is the main remnant of the embryo. In some of these the amnion is formed; in others it is entirely destroyed.

II. The chorion alone remains. This may form vesicular or solid moles.

III. Embryo destroyed. Chorion and amnion present. The amnion usually lines the chorion. A short stump of the umbilical cord may be left.

IV. The embryo is present, but degenerated. Mall divides this group according to the age of the embryo at the time when the pathologic process began.

The causation of many diseased conditions of the ovum is evidently of uterine origin. So far as the ovum itself is concerned, the question arises whether the chorion or the embryo is primarily affected. His thought that the embryo itself was the part to be involved first. This idea fits in well with the germinal theory. His did not make a microscopic examination of the fetal membranes, and therefore his opinion regarding changes in these structures is of little value. Mall originally thought there were two great groups: one in which the embryo was primarily affected, and the other in which the chorion showed the first changes. At present he seems to be of the opinion that the chorion is the structure to show the primary changes.

Assuming that these diseased conditions are the result of uterine disease, it would be logical to expect the chorion to be affected first. Both chorion and embryo may suffer from the same cause, and the embryo also show changes due to disturbed nutrition resulting from the altered chorion. There is still a great deal of room for light regarding the pathology of these conditions. So far as the decidua is concerned, very little is definitely known, partially because it is only rarely that this structure is available for microscopic study. The chorion shows distinct changes. The intervillous spaces are usually filled with a granular and stringy substance containing leucocytes and abnormal syncytial nests. This change often antedates other chorionic changes. The syncytium shows abnormal growth, may become necrotic, and may be infiltrated with leucocytes. The mesodermic tissue of the villi may be invaded with syncytial cells. The villi may be hypertrophic or atrophic. They may show edematous, mucoid, hyaline, and fibrous degeneration, and there may be vacuoles and larger spaces which

contain granules. The blood-vessels may show degenerative changes. The magma in the exocelom usually disappears when the amnion reaches the chorion. In abnormal ova, this may not take place. The magma may be greatly increased and is usually of two types, the reticular and the granular. This magma may break through the amnion and surround the embryo.

The embryo presents a variety of pathological changes. Hydramnios frequently occurs in diseased ova. Abnormal ova are much more common in the first seven weeks of gestation. They are much fewer in the eighth and ninth week and scarce after the tenth week. Those surviving the second month are apt to live to term and be born as monsters. Statistics show that one monster is born to about twelve pathologic ova. Arguing from this fact, Giacomini suggested, and Mall is inclined to agree, that early threat-

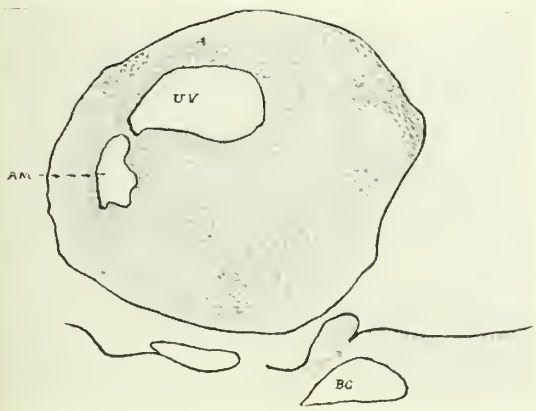

Fig. 11—Case 2.

ened abortion should be encouraged. By early abortion, they undoubtedly mean that which occurs in the first two months.

The changes in the embryo vary from complete destruction to very slight structural changes. There may be arrested development of the embryo with continued growth of the remainder of the ovum. The converse of this is not true, because any affection of the chorion interferes with the nutrition of the embryo, and brings about more or less marked changes. Sometimes a relatively small embryo is found in quite a large sac. Attempts have been made to use the relative size of the embryo and the ovum as a means of determining whether or not the ovum is pathologic. This idea does not appear to be well founded.

Different portions of the embryo are more susceptible to injury at different stages of its development. Young embryos of about the first four weeks are very prone to degenerative changes. In embryos of the fourth week the amnion is often destroyed and the embryo gone, leaving the umbilical vesicle. The chorion alone may remain and grow into a mole. In the fifth week the embryo is more resistant. Later the skeletal tissues resist injury better. The extreme ends of the embryo are more easily affected. In young embryos the tissue reactions are very marked and they are easily destroyed. The older embryos may show an irregular growth without proper development of organs when their nutrition is interfered with. It is necessary for the development of monsters that the fetal heart be able to functionate and that the chorion be normal enough to permit the formation of a healthy placenta.

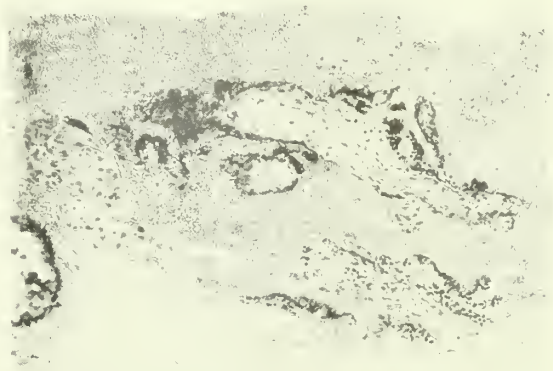

Fig. 14—Case 2.

Panum, in investigating tissue changes in chick embryos, found evidence of exudation, adhesion, and scar-formation. Necrosis and cell-multiplication also occurred. These changes may take place even before blood-vessels are formed. He spoke of this as parenchymatous inflammation. Pathologic embryos lose their transparency and the sharp lines of demarkation. The older ones show some mixture of the cellular elements of different organs. They may show congestion and enlargement of blood-vessels, and the cells may wander into the tissue. There may be some correlation of tissue-growth, which may represent a fundamental type of inflammation. This may lead to regeneration. A lack of this correlation associated with cytolysis and histolysis leads to dissociation.

With this brief consideration of some facts regarding pathologic ova, I shall proceed to a re-

port of three cases, which I have collected. The first represents Group IV in Mall's classification. The embryo is present, but degenerated. Case 2 is a representative of Group I, the vesicular type. The third case falls in Group II, where the chorion alone remains.

Case 1. Specimen received from Dr. C. E. Henry, June 28, 1912. About June 18th the patient had an abortion induced. Following this, she flowed and passed clots and shreds. On June 26th she vomited and had chills with moderate fever. Patient has two children and gave a history of having had many abortions induced. The date of her last menstruation is not known.

The sac was ruptured. Its walls were quite thick and hemorrhagic and lined with a smooth glistening membrane, the amnion. The exocelom, the space between the amnion and chorion, was obliterated. Within this sac and lying on the amnion was a small whitish mass. It proved to be a badly degenerated fetus, a picture of which is shown in Fig. 1. It measured 5 mm. in length, and was thought to be in the fourth week of gestation. The outlines were quite distinct, but it was rather opaque. The head was easily seen, and some gill slits could be located. The umbilical vesicle and the buds of the extremities were apparent.

Serial sections were made of this embryo. Microscopic examination shows marked dissociation. It is almost impossible to recognize any normal embryonic cells, to say nothing of the tissues. There is an apparent infiltration with cells which resemble polymorphonuclear leucocytes, which probably came from the maternal blood-stream.

Higher magnification shows some cells, which are evidently ectodermal cells. In some sections embryonic cavities are seen, and a few groups of fairly well preserved cells are visible, but it is not possible to determine many definite relationships.

It is quite important to be familiar with the normal appearance of the chorionic sac in the early weeks of pregnancy. The intervillous spaces contain a small number of red-blood cells. There are buds of syncytium, which are well defined and have distinct nuclei. In some areas well-preserved decidua and trophoblastic cells may be seen. The villi do not show marked variation in size. They are covered with two distinct layers of chorionic epithelium, the so-called Langhan's layer and the syncytium. There is a delicate reticulum of mesodermic cells. In a few villi there are small blood-vessels lying in the stroma; this is true after about the third week.

Microscopic sections from the wall of the sac in Case 1 show that the intervillous spaces are filled with old and fresh blood. A considerable number of polymorphonuclear leucocytes are scattered through these hemorrhagic areas. Blood-pigment is sprinkled through the sections. There are islands of degenerated syncytium, showing matting together of the nuclei. Decidua cells are found in various stages of degeneration. Groups of these cells are infiltrated with leucocytes. Villi, nearly obliterated, lie in these hemorrhagic areas.

The villi show marked variation in size, form, and appearance. Mere relics of some are found; others, in a better state of preservation, show infiltration with leucocytes, fibrosis, and hyaline degeneration. The two layers of chorionic epithelium are not distinct; the cells and nuclei are not discrete, but show matting together. There are some blood-vessels in the mesoderm of the villi. The stroma is much more dense than normal and shows the various changes mentioned above.

Case 2. Mrs. H. C. V., aged 22; married for three years. This abortion resulted from her second pregnancy. The previous pregnancy ended in the birth of a full-term child following instrumental delivery.

Previous health and family history, unimportant. Menstruation has always been very irregular. First menstruation following the birth of her child, in January, 1911, was in April, 1912. There was none in May or June. The last flow was July 27th to August 3d. There were no subjective symptoms of pregnancy. On October 23d, nearly three months after her last period, she began to flow. This continued as a slight discharge until October 26th. She felt depressed, was chilly at times, but had no fever. A flow continued intermittently, and at times quite severely, until November 1st, when she passed a large mass.

The sac was unruptured, making, with blood-clots surrounding it, almost a complete cast of the uterine cavity. The walls were hemorrhagic and quite thick. When opened a pale, thin, clear fluid escaped. The outer measurements of the sac were 1.5x2.5x4.5 cm. The lining was a smooth glistening membrane. Lying on this membrane was a small whitish mass about 2 mm. in length. This proved to be a fetus, the age of which is estimated at about 15 to 16 days. The form of the sac was irregularly ovoid with hemorrhagic processes leading off from it. It was soft, dark-red in color, except for a few areas where the glistening membrane was exposed. The

surface was rough and somewhat shaggy. Cross section showed in some places a thick hemorrhagic wall; in a few areas there was only a relatively thin chorion. Looking through the opening into the sac, one saw the exocelom with its lining membrane.

The fetus is shown in Fig. 8, which is a photograph of a drawing. As already mentioned, this fetus is thought to correspond to the early part of the third week of gestation. The greater portion of its bulk is made up of a relatively large yolk sac or umbilical vesicle. It was doubtless retained within the uterus for some time after its normal development ceased. It is not a normal embryo. It shows degenerative changes and, if the term is permissible, some embryonic inflammation. This would probably fall in Group I of Mall's classification, as one of the types of vesicular embryos.

Fig. 16—Case 3.

A reconstruction in wax was made of this embryo. The different cavities are designated by colors. Red shows the body cavity; yellow represents the amniotic cavity; the small cavity in green is that of the allantois, and the larger one is the umbilical vesicle. The course of these different cavities may be traced through the sections of the model.

Fig. 11 is made from a camera-lucida drawing of a serial section. A series of such drawings was used to cut wax sections, out of which the model was built. These drawings show that the cells and tissues are not well differentiated, though they are much better preserved than in the embryo of Case 1.

A section through a hemorrhagic portion of the wall of the sac in Case 2 is depicted in Fig. 14. Villi in various stages of degeneration are scattered through this hemorrhagic mass. This photograph shows one of the best preserved groups. There is very marked hemorrhage, but very little round-cell infiltration. The cells and nuclei show disintegration and various degenerative changes. The only remnant of some villi is a small hyaline-appearing mass.

Case 3. Specimen received from Dr. C. E. Henry, June 7, 1912. Patient had an instrumental delivery of a full-term child, one year previous to this abortion. There had been no other pregnancies. She was not well after the birth of her child. She had a displaced uterus and an endometritis. The first period after her confinement was in April, 1912. There was none in May. She began to flow on June 2d and had irregular pains. She had no fever. The ovum was expelled June 7, 1912. This case is illustrated by the following series of photographs.

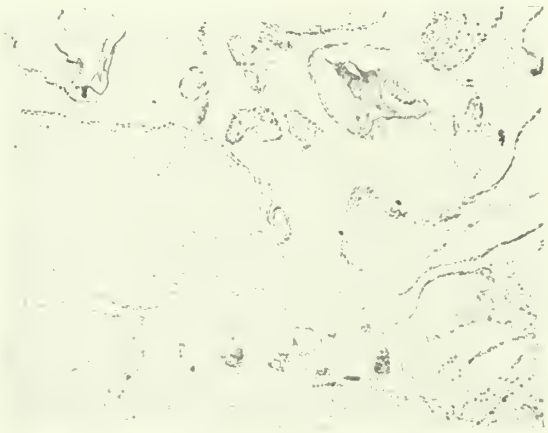

Fig. 19—Case 3.

The sac is shown in Fig. 16. It was unruptured when first received, but was not measured until it was emptied. The outer measurements were 2.7x3.3 cm. It was spherical and soft, and contained fluid. The surface was shaggy and showed some slight differentiation into the chorion frondosum and leve. There was very little hemorrhage around this sac. When it was opened a clear gelatinous fluid escaped. There were some fibrous strands running out from the inner wall of the sac and through this fluid, which resembled Wharton's jelly. No evidence of an amnion or remnants of an embryo could be found. In some areas of the microscopic sections the intervillous spaces are filled with blood.

The proportion of leucocytes does not seem to be excessive. In other portions these spaces are more or less filled with badly degenerated decidual or trophoblastic cells, fibrinous material, and

abnormal syncytial masses. They show degenerative changes, granules, vacuoles, unusual distribution of chromatin, and hyaline appearance. Many villi are enlarged, and there is considerable variation in their form and size. The chorionic epithelium covering the villi is thinned out and degenerated. The stroma has lost its cellular structure, and in many villi it is replaced by a fibrinous-appearing reticulum. This may indicate a sort of mucoid degeneration. Some have been invaded by the chorionic epithelium. There is very little leucocytic infiltration. The changes resemble somewhat those seen in a vesicular mole. In some villi spaces which appeared to be blood-vessels were found.

Fig. 19 shows hypertrophic and degenerated villi with the changes which have already been outlined.

There is vacuolation and degeneration of the syncytium. As mentioned before, these changes suggest those found in hydatidiform mole.

This closes a rather short discussion of a very interesting subject. It would be foolish to attempt to draw any conclusions with such meager material.

It is hoped that some interest in this subject may be stimulated. Any material that may be obtained for study will be carefully investigated.

NOTE.—This work was done at the Institutes of Pathology and Anatomy of the University of Minnesota. The author wishes to acknowledge the personal assistance of Prof. R. E. Scammon.

THE INFLUENCE OF NASAL ACCESSORY SINUS DISEASE ON THE EYE*

By J. G. Parsons, M. D.

SIOUX FALLS, S. D.

Our knowledge of the intimate relation between nasal and ocular disease has been developed for the most part during the last decade. It is true that in a general way ophthalmologists have recognized some connection between the two, but the phenomena had been but superficially investigated, and comparatively few pathological data were available. Such relations as infection of the lachrymal sac, originating in the nose, congestions of the conjunctiva, and edema of the lids associated with colds, reflex sneezing in certain ocular lesions, and abscess of the orbit due to perforation of the walls of the frontal and ethmoid sinuses, had all been observed. The more intimate relations which are now recognized were worked out by such men as Hajek, Onodi, Birch-Hirschfeld, De Schweinitz, and Knapp.

It is the purpose of this paper to call attention to some of the more important facts which are now at our disposal, believing that the subject is sufficiently important to merit the careful attention, not only of the ophthalmologist, whose viewpoint has been materially altered, by the way, but of every practitioner who has to deal with so simple a case as that of a "common cold." The "common cold" has come to be recognized as a much more serious affair than formerly supposed, involving, as it does very frequently, the accessory cavities of the nose.

The anatomical relations of the accessory sinuses must be borne in mind. The accompanying drawings illustrate the more important relations.

The thickness of the lamina of bone separating the optic nerve from the ethmoid and sphenoid cells, varies in its thinnest portions from $\frac{1}{25}$ to $\frac{1}{100}$ inch. The ease with which infections of these sinuses may perforate such paper-like partitions, with disastrous results to the optic nerve, at once suggests itself.

The venous supply affords an opportunity of extending infection from the sinuses to the orbit, as well as being affected by hyperemic conditions, which may involve both.

The veins of the frontal sinus communicate with the frontal and supra-orbital. Those of the ethmoids drain into the superior ophthalmic. There is a free anastomosis between the superior and inferior ophthalmics and the anterior and posterior ethmoidals and the central retinal vein. The last-named vein is of especial importance since, by its engorgement, and from the absorption of toxemic products therefrom, the papillo-macular bundle of the optic nerve may be involved, resulting in more or less complete loss of central vision.

The common origin of the sensory nerves of the eye and nasal cavities makes it possible for nervous reflexes to be easily established, which refer the pain of a nasal lesion to the eye and adjacent structures.

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The accessory sinuses of the nose are so situated that they are quite easily susceptible to infection and inflammatory processes, which may vary anywhere from simple hyperemia, catarrhal inflammation, and suppuration to necrosis of bony tissue.

The simplest form of accessory sinus involvement which may produce ocular symptoms, is that of congestion of the mucosa resulting in an occlusion of the normal openings of the frontal and anterior ethmoidal sinuses. Absorption of the oxygen within the cavities produces a partial vacuum, establishing a vicious circle of more congestion.

The symptoms that arise are usually those of one-sided headache, with tenderness under the eyebrow and at the inner angle of the orbit. The pain is worse on stooping over, and may be associated with vertigo. Quite often the eye on the affected side will be congested and watering. Vision is blurred, and the use of the eyes for near work is attended by discomfort, suggestive of refractive errors. Often, however, examination of the eyes will show no important refractive error. This should emphasize the importance of looking for nasal disturbances in every case which is refracted.

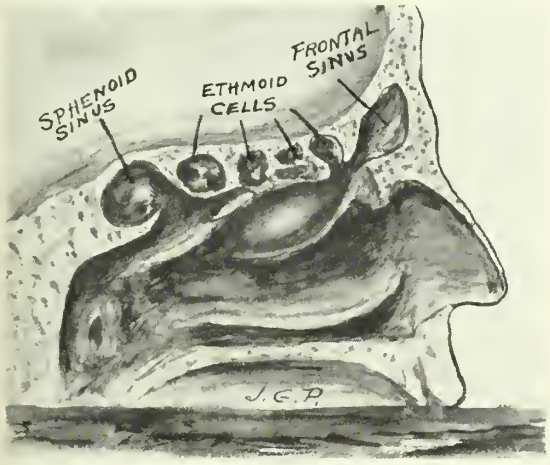

Fig. 1. Anteroposterior section of the head showing the lateral wall of the nose, the middle turbinal removed to show the ethmoidal bulla and the semilunar hiatus into which the frontal sinus and anterior ethmoid cells drain. Note that the frontal and ethmoidal cells drain to the front and the lateral surface of the middle turbinal, while the posterior and sphenoidal cells drain to the back and mesial surface.

These simple cases are usually relieved by a weak spray of adrenalin to the middle-turbinal region, reducing the congestion and opening the occluded cavities.

Cases of this kind are found to be recurrent on slight provocation on taking cold, irritation from dust, etc. Careful examination of the nose under cocaine and adrenalin will show hypertrophy of the middle turbinal, frequently in tight contact with the septum, at the point called by Ziegler "the eye spot of the nose." The irritation from this contact, together with the hyperesthesia and nasal obstruction, is a frequent cause of headaches, muscular twitchings of the lids and face, and congestions of the conjunctiva and lids, through the reflexes carried by branches of the fifth nerve.

It is a common occurrence to find such a chain of symptoms, which, after general treatment and correction of refractive errors, still persist, entirely cleared up by removal of a portion of the middle turbinal.

Suppuration involving the sinuses produces a similar chain of symptoms, with the additional results of increased pressure, venous stasis, and absorption of toxic products.

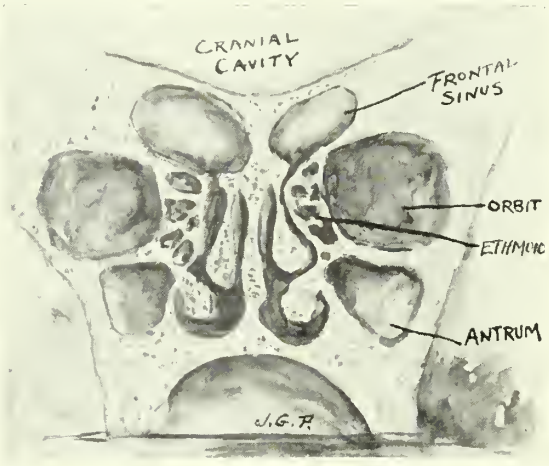

Fig. 2. Cross-section of head, showing the relations of the nasal cavities, the accessory sinuses, and the orbits. Note the thin lamina of bone between the ethmoid cells and the orbit. Also note how swelling of the middle turbinal may occlude drainage from the frontal and ethmoidal cells.

The pain and congestion bear a direct relation to the intensity of the infection, but may persist in a lesser degree after suppuration has ceased, being kept up by the presence of exuberant granulation-tissue. The headache, as has been mentioned, may resemble that due to refractive disturbances, and these cases are often referred to the oculist, or even given the general advice that they "need glasses."

The pain in involvement of the frontals may be worse at night, and not particularly associated with use of the eyes. It is liable to be of a paroxysmal nature, worse in the morning and easing up by the middle of the day. The pain is

usually frontal, but may be associated with a reflex occipital pain.

Tenderness is found on pressure under the brow at the inner angle of the orbit in frontal involvement, at the inner angle of the orbit and side of the nose in ethmoidal sinus trouble, and over the canine fossa in that affecting the antrum of Highmore. Sphenoidal sinusitis is associated with occipital pain, and a pain felt behind the eyes, associated with a reflex temporal headache.

In chronic cases, with a fair amount of drainage, the interval between the acute exacerbations may present no headache, but tenderness may usually be found on deep pressure.

A one-sided discharge from the nose is very suggestive of sinusitis. Examination of the attic of the nose showing a discharge of pus from beneath the middle turbinal, that is, to the lateral side, indicates an involvement of the frontal or anterior ethmoidal cells. A discharge to the mesial side points to trouble in either the posterior ethmoids or sphenoid.

Where no especial amount of secretion is visible it may be brought to view by the use of the suction-apparatus applied to the nostrils, aspirating any secretion that may be present.

The principal ocular symptoms which may be discovered as complications of the sinus disease, are edema of the lids, lachrymation, congestion of the conjunctiva and sclera, keratitis, ulcers of the cornea, choroiditis, and cyclitis; also optic neuritis and neuroretinitis, and thrombosis of the retinal vein. These conditions are traceable through reflex irritation, congestion, and infection through the blood-stream and lymphatics, as well as through perforation of ethmoidal suppurations through into the orbit.

Onodi has called particular attention to the extreme thinness of the bony walls of the cells and especially to the walls of the optic nerve canal. Through these thin walls Birch-Hirschfeld believes that inflammatory processes extend, producing edema, swelling, and proliferation of the glia cells, and destruction of the fibers of the nerve, due to venous stasis and the action of absorbed toxins.

It is important to note that the papillomacular bundle is so situated that it receives an unusual amount of pressure from stasis and is on that account very liable to injury. This accounts for the frequency with which impairment of central vision is found in these cases.

The facts at our disposal lead us to conclude that nasal lesions, instead of being particularly associated with ear disease, are fully as important factors in the cause of disease of the eye. No examination of the eye is complete without taking this fact into consideration, especially when it is known that nasal disease may closely simulate that most common condition known as "eye-strain."

By way of illustration the following cases are mentioned:

Case 1.—Mr. K., aged 22, previously refracted by me and wearing correction. Complains of headaches and pain about the eye; worse when he has a cold recently. Congestion of conjunctiva; some lachrymation. Eyes sensitive to light. Examination of nose shows slight discharge, watery. Application of cocaine and adrenalin shrinks up engorged turbinal. Free watery discharge for a few hours followed by complete relief of symptoms.

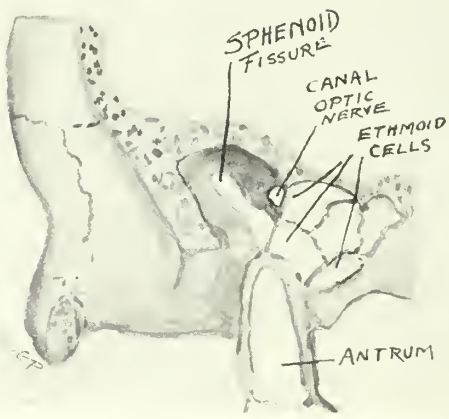

Fig. 3. Section of head at about the middle of the zygoma. The intimate relation between the ethmoid cells and the orbit is shown. Note especially the position of the optic-nerve canal, and the very thin lamina of bone between it and the ethmoid cell adjoining.

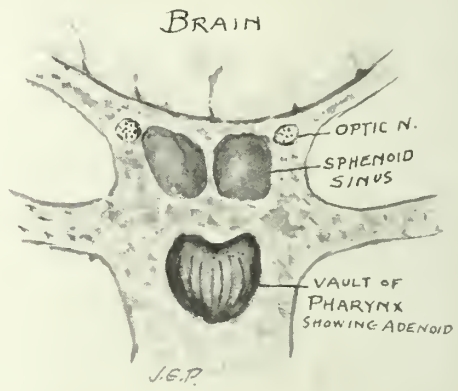

Fig. 4. Showing the relation of the sphenoid cavities and the floor of the cranial cavity, and the proximity of the optic nerve in its canal.

Case 2.—H. C. S., aged 32. Had severe cold ten days ago. Discharge from right nose. Headache starting in morning and persisting until 2 P. M. Right eye feels "heavy." Tenderness over frontal sinus and superior orbital nerve. Eye slightly congested; slight edema of lids. Nasal examination shows large boggy middle turbinal, with thick pus draining from lateral side.

Diagnosis, frontal sinusitis. Operation: resection of middle turbinal, giving free drainage. One week later symptoms disappeared. Vision increased from 20/40 to 20/20 without lenses.

Case 3.—Miss M. M., aged 26; referred for refraction and lachrymal-sac infection. Very myopic. Left lachrymal sac full of pus, with discharge of pus from left nose. Examination shows chronic infection of ethmoid, sphenoid, antrum of Highmore and frontal sinus; all discharging freely. After clearing out nose under local anesthesia a subsequent Killian operation was done for radical cure of the frontal sinus disease, with good results.

This case is notable for the lack of any ocular symptoms due to sinus disease other than the purulent infection of the lachrymal sac.

Case 4.—Mrs. J. A., aged 27; three weeks ago noticed pain in left eye with blurring of vision. Feels pain behind eye and in back of head. Vision, right eye, 20/20; left eye, 20/200; not improved with lenses. Ophthalmoscope shows congested nerve-head. Examination of nose: septum deflected to left; attic completely occluded; sight discharge after shrinking with cocaine and adrenalin.

Operation under cocaine: removal of middle turbinal and adjacent ethmoid cells and drainage of sphenoid. Cells filled with granulation-tissue and small amount of pus. Two weeks later: pain relieved; vision, 20/40.

A similar case of three months' standing with vision reduced to 8-20 recovered with 20-50 vision.

A third case similar to these with vision limited to finger-counting was operated upon for chronic infection of ethmoid and sphenoid, with no improvement in vision.

Case 5.—Miss S., aged 25; referred for refraction. Pain in eyes, with supra-orbital headaches. Sensitive to light. Has typical migrain attacks. Sleeps poorly. Had nosebleed for years, last two months associated with severe headaches. Pain under brows on pressure, especially on left side. Large boggy middle turbinal on left side; slight discharge. Refraction, No. 1. sph. each eye.

Advised operation, which was declined.

Two weeks later patient returned with a marked edema of left lids, with severe pain in eye. Lids were ecchymotic. No history of injury; swelling coming on over night. Nose found full of pus. Ethmoid and sphenoid exenterated. Perforation of orbital wall with retro-ocular abscess found.

Patient made good recovery with normal vision. Three months later, however, she developed a left-antrum infection requiring external drainage. In two similar cases the retro-ocular abscess was so large as to cause protrusion of the eyeball, but good vision was recovered.

These cases suggest the importance of making a careful investigation of the nose in all cases of impaired vision and inflammatory conditions of the orbit, and not being content to exclude nasal disease because no serious conditions are visible on superficial examination.

MEMBRANOUS PERICOLITIS*

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MINNEAPOLIS

Virchow is accredited with being the first observer to call attention to the condition designated as membranous pericolitis. Binnie, under the caption of "Pericolitis Dextra," in 1905, calls the attention of the profession to it. But it remained for Jackson, in 1908, to definitely deal with the membrane, and by a masterly analysis and report of his cases to focus the attention of the medical profession upon this pathological pannus or "Jackson's veil."

Since his paper, in 1909, the membrane therein described, along with the so-called cecum mobile of Wilm's, and enteroptosis or Glenard's disease, has occupied the center of the stage, surgically speaking, if the mass of literature they have produced is any criterion.

A study of 31 cases of this disease is my excuse for entering a field already thoroughly tilled.

Jackson's membrane is a membrane proper, not an adhesion, nor alone a hyperplasia. It has its origin on the parietal peritoneum, spreading out pannus-like over the outer and anterior aspect of the cecum and ascending colon, occasionally, though rarely, covering the caput coli and appendix, and usually having its bowel attachment at about the site of the anterior longitudinal band of the colon, being spread over the gut, fan-shaped, from the caput coli to the hepatic flexure, and even beyond and on to the transverse colon. This membrane is very thin and transparent and contains numerous straight blood-vessels running through it and paralleling one another at an acute angle with the long axis of the gut.

The bowel plays more or less freely under this investing membrane, which can be readily

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stripped off and looks not unlike gold-beaters' skin. Underneath it the glistening normal peritoneal covering of the bowel is usually intact.

Certain bands in this veil are shorter than others and more dense, non-elastic, and tense, so that the bowel is bound and cramped by them —thrown into folds and sacculations, angulated and obstructed, sometimes axially rotated, and even at times returned upon itself, and the two legs of the gut bound close together by the membrane, a distinct kink resulting. This especially happens at the hepatic flexure. The cutting of

Colonic injection showing prevention of cecal distension by membrane.

one of these bands loosens the bowel, and a lozenge-shaped area of peritoneum is exposed.

Although we have never seen the membrane elsewhere than on the cecum, ascending colon, hepatic flexure, and, for a short distance, on the transverse colon, other observers report it at the splenic flexure and on the descending colon and sigmoid.

Most clinicians agree that membranous pericolitis is generally coincident with cecum mobile and visceroptosis, to a greater or less degree, and rarely, if ever, present when prenatal fusion has anchored the bowel to the parietal peritoneum firmly.

Twenty per cent of all normal individuals, however, have failure of fusion and have a mesocolon long enough to permit of wide excursions of the cecum, this organ being freely movable and frequently a pelvic organ. Every surgeon knows of the great range of mobility of a floating cecum—how it can be lifted from the pelvis, brought over to the left side, and may even be made to touch the lower surface of the liver. Treves comments upon this fact and, as well, upon the absolute freedom from symptoms that accompany it. It is this one-fifth of the normal individuals, however, who are peculiarly liable

Cecal atony and ptosis; slow filling of transverse colon, showing impaired motility of the bowel.

to membranous pericolitis, for the mobile bowels more readily angulate at the flexures and invite constipation.

Observers are not agreed as to whether membranous pericolitis antedates or follows ptosis—is a cause or result. They are, however, almost unanimous in the opinion that the conditions are coincident.

There is much dissension as to the etiological factors which explain this membrane. Jackson, to whom we are indebted for the first elaborate description, does not suggest a cause. Mr. Lane describes these "adhesions," as he calls them, although he admits they are not inflammatory—rather, he thinks they are traction-adhesions incident to man's upright posture and the drag-

ging down of a cecum mobile with imperfect axial rotation of the bowel. He holds them to be "developmental resources of the crippled colon."

Hertzler believes them to be inflammatory in origin and following disease of the appendix or gall-bladder. Hofmeister agrees with him, but also believes that they may result from inflammation in any adjacent organ. Connell believes they are due to ptosis of the cecum.

Flint, after dissection and study of embryos

Cecal atony and ptosis; crippling of bowel by membrane; moderate degree of general visceroptosis.

and full-term infants, is convinced that the membrane is not the result of any inflammatory process or the residue from repeated attacks of colitis, but, rather, is due to extensive prenatal fusion, where the cecum under the liver becomes attached to the parietal peritoneum, and then, when cecal descent occurs, these attachments are dragged down with it and stretched out. This, to his mind, explains the straight parallel unbranching blood-vessels.

Chas. H. Mayo believes the membrane is due to the late rotation of the bowel and descent of the cecum from its hepatic position after the formation of the parietal portion of the peritoneal cavity in the infant, the cecum burrowing its way into position, as it were, through the peritoneum.

Connell, in discussing this theory, asks the pertinent question, why the cecum elects to follow the line of the greatest, rather than that of the least, resistance, and burrows behind the parietal peritoneum, when it would be easier to descend in front of this structure in the usual manner. He also asserts that, were the burrowing theory correct, it is probable the entering wedge—in this instance the caput coli and appendix—would be enveloped by the membrane, while, as a matter of fact, they are rarely involved. Keiller believes the omentum occasionally invests the cecum of the embryo and is dragged

"Double-barrel" reduplication of the large bowel, with marked crippling from membrane; very deliberate filling of transverse colon.

down by the descent of that viscus, the straight parallel blood-vessels of the "veil" resulting from traction.

Eastman believes the condition is incident to the fetal folds and membranes of Jonesso, Reed, and Treves.

Binnie considers the condition due to a primary colitis, while Lennander believes the veil the result of an infantile colitis. The majority of observers, however, are disposed to agree with Pilcher and Gerster, and believe the membrane is the result of a chronic infection, bacteria by exosmosis penetrating the coats of the bowel, a direct result of fecal stasis.

It has long been surgically accepted that all inorganic or plastic adhesions are absorbed after their cause is removed. It is well known that organic adhesions incident to the loss of endothelium from the peritoneal serosa remain. They may stretch out and become attenuated, but they fail to lose their characteristics, which are utterly unlike those of Jackson's veil.

A pendulous mobile cecum, bearing the load of 90 per cent of all the ingested fluids of the body and its share of the solids, 30 per cent of which are bacteria, and sagging on its attachment to the kidney through the nephrocolic ligament, described by Longyear, and on the peri-

Cecal atony and ptosis; partial obstruction from the membrane at the hepatic flexure.

toneal fusion to the duodenum at the hepatic flexure, finds it difficult to properly empty itself. Its walls at first become hypertrophic, later dilated and thinned, and muscle-tone is lost and peristalsis weakened. As a result the mesocolon is stretched and the cecal ptosis is exaggerated. This, in turn, drags at the hepatic flexure, angulating or knuckling the same, and typhlatony and coprostasis result. The cecum is described by Mr. Lane as being the cesspool of the digestive system—the bacteria here are the most virulent and numerous; fecal stasis aids fermentation and decomposition; chronic constipation is the end-result with its concomitants of toxemia, malnutrition, and neurasthenia.

Failure of elimination and its coincident auto-intoxication cause an absorption of retroperitoneal fat. The supports of other visceral organs are weakened and intra-abdominal pressure lessened; visceroptosis, to a greater or less degree, follows; and this again causes a greater angulation of the large bowel at both the hepatic and splenic flexures, due to the constant sagging of the transverse colon.

As a net result of these various factors, the large bowel may be reduplicated, a sharp angle

Cecal prolapse; "double-barrel" reduplication of ascending colon; crippling of colon by membrane; slow filling of transverse colon; stomach adherent at hepatic flexure.

formed, and parallelism of the two bowel legs occur, increasing the constipation, bowel atony, and toxemia, each in turn helping towards the formation of the pseudoperitoneal membrane.

The right kidney is usually movable, being dragged down by the ptosed cecum; the left kidney is rarely misplaced. The splenic flexure of the colon, firmly attached to the under surface of the diaphragm by the phrenocolic ligament, is the last to be ptosed. Should this let down it drags the left kidney with it, and this organ is movable.

A movable left kidney is pathognomonic of general visceroptosis, a condition not amenable to surgery, but one which really relieves, in a

measure, the condition which caused it; for with general visceroptosis comes a straightening out of the angles of the bowel at hepatic and splenic flexures with partial relief of the "vicious circle", stasis, and secondary toxemia.

Visceroptosis is believed by many to be primarily congenital and by others acquired. The muscular atony of the abdominal walls is a factor which aggravates the condition, in that it in a measure determines the intra-abdominal pressure. Lane's kink is caused by true adhesions, a

Cecal atony and ptosis; crippling of ascending bowel by membrane; slow filling of transverse colon.

ptosed cecum angulating and overriding the terminal ileum until adhesions are formed. The conditions of Lane's kink, cecum mobile (if accompanied with typhlatony), angulation of the flexures of the bowels, and membranous pericolitis have a syndrome of symptoms which have much in common. Fecal stasis gives the key to them all.

Mr. Chapple, after a study of 50 cases, has crystallized these symptoms, as follows: (1) headache; (2) attacks of nausea and vomiting; (3) loss of appetite; (4) constant loss of weight; (5) cold hands and feet, due to defective circulation; (6) mental apathy; (7) chronic constipation; (8) abdominal distention, relieved by eructation or passage of flatus or movement of the bowels; (9) muddy, sallow skin, dark circles under the eyes, etc.; (10) tenderness over the cecum and ascending colon, occasional gurgling of gas on palpation; (11) joint troubles and changes in the breasts. To these symptoms the writer would add pain, which is more or less constant, and neurasthenia as a climax. The abdominal muscles are not rigid, as in peritoneal hyperemia, but a distinct spasm of protection can be elicited by percussion. The gastric symptoms are the common reflex of them all, and they have been pertinently designated "appendiceal dyspepsia."

Complete visceroptosis; reduplication of the colon upon itself and almost all of large bowel in the pelvis.

Surgical eyes have so long been focused upon the appendix that they have grown myopic, and have been unable to see the other offenders in the right iliac region. How can a surgeon who makes a buttonhole incision over the appendix glean any evidence as to the condition of the bowels in this region? This single devotion to the appendix explains why so many patients operated upon for appendicitis have persistent symptoms afterwards.

A study of the writer's 31 cases of membranous pericolitis reveals the following facts:

One case was operated upon for persistent symptoms after the appendix had been removed by another surgeon; an elaborate veil was found, crippling the ascending colon, with 90° of axial rotation, and a reduplication of the gut at the hepatic flexure. Four cases had coincident gallstones and chronic appendicitis. Four other

cases had gall-stone disease with no evidence of appendicular trouble. Thus it will be seen that 27 out of the 31 cases had appendicitis, either alone or coincident with gall-stones.

We have never seen the veil in children. Our youngest case was 18 years of age, and the oldest 59. This leads us to ask of the advocates of the embryonic theory why the condition is not commonly found in children.

While we have personally never seen membranous pericolitis unaccompanied by some other lesion, notably appendicitis or gall-stones, we are informed by Dr. W. J. Mayo that it has been found in the Rochester Clinic during pelvic explorations when the appendix and gall-bladder were normal.

In all my cases cecum mobile was present, to a greater or less degree. If not determinable at once the condition was created when the bowel bound down by the veil was liberated, a significant fact, which looks much like a reversion to the cause of the trouble. The greater prevalence of visceroptosis in females is admitted, 25 of our 31 cases being in women.

In discussing the treatment of this disease, the writer feels he is treading on dangerous ground. The question of the anchoring of the viscera by any of the many pexies devised by different surgeons, has been threshed out on many a hard-fought field, and still differences of opinion are aired. The same obtains with the numerous methods of plication, either of the organs themselves or of their supports. Statistics, the bugbear of the clinician, have rolled up on both sides of the question until it is literally a matter of each surgeon's personal predilection. Coffey's exhaustive article in the October No. of *Surgery, Gynecology, and Obstetrics* is an example of this.

Wilms reports 75 per cent of cures from his fixation of the cecum. He buries that viscus by splitting the parietal peritoneum, mobilizing the leaves, and stitching them over the cecum and ascending colon. Klose, of Frankfurt, has fixed the mobile cecum to the parietal wall in 154 cases and reports 89 per cent of absolute cures.

Longitudinal plication of the gut has its advocates. This method lessens the lumen of the bowel and has been used by the writer in one instance, but of so recent a date he can arrive at no conclusions as to its merits. Each and all of the methods of cecal and colon fixation or imbrication are open to the objection that they must needs interfere with the normal muscular activity of the bowel and hence with peristalsis. If the theory of fecal stasis is correct, will they not aggravate the cause?

Mr. Lane's advocation of the very radical procedure of removing the large bowel and anastomosing the ileum and sigmoid, has been received with little enthusiasm by American surgeons. He later modified this procedure and advocated an anastomosis of the ileum and sigmoid, leaving the colon as dead bowel. Even this procedure is deemed too radical by the majority of surgeons in America and abroad. He now advocates feeding these patients paraffine oil, claiming this mineral oil greatly relieves constipation and auto-intoxication. The writer's very limited experience with this theory would tend to confirm Mr. Lane's assertion.

It seems logical, if we understand the mechanics of the disease, to insist upon kidney fixation if the bowel is fixed, or the converse, as the right kidney is so intimately attached to the colon. Connell advocates ligating the parietal attachment of the pericolic membrane, stripping up the membrane from the bowel, twisting it into a cord, and attaching it to the parietal wall, thus supporting the cecum. Recognizing the danger from a band of adhesions left in the abdomen, he, in a later communication, modified his technic, burying the twisted band in the abdominal wall. Flint advocates simply severing the constricting bands.

After operation Martin resorts to the prolonged Trendelenberg position. Jackson and others report encouraging results from the removal of the pannus. The writer has removed the veil when it has shown the bowel constricted, angulated, or crippled in any way. His observations are too recent to have much value as to end-result. He can only say that the patients are relieved of their symptoms and put on weight. Gerster is authority for the statement that a pericolic membrane removed will recur unless the underlying cause is removed. Other observers do not uphold him in this assertion. Mayo, to prevent new adhesions, smears the denuded peritoneum with sterile vaseline after removal of the veil.

Forced feeding, posture in bed, the various prosthetical belts or corsets, hygienic and dietetic methods, supplement or take the place of surgery in those extreme cases of general ptosis.

Our studies of these patients prior to operation have been augmented by the bismuth meal or the injection of the colon with a bismuth

emulsion, after which a series of *x*-ray skiagraphs are made, from six to twelve hours after the meal. The exposures usually are made with the patient standing. By these *x*-ray studies we have been able to confirm our clincial findings, which were in turn checked at operation. In practically all of our cases we have been impressed by the ptosed position of the transverse colon. In some instances this bowel was found lying within the true pelvis. Whenever this bowel was down there was a sharp kinking at the hepatic or splenic flexures with usually a Jackson's veil at the former. The cecum was so frequently in the pelvis we have learned to expect it there.

A dilated cecum is not demonstrable by the bismuth meal unless the condition is chronic and the bowel markedly atonic, when it can sometimes be demonstrated by the colonic injection.

We have been impressed with the typhlatony in these cases as shown by irregular and late filling of the transverse colon, the crippled musculature of the bowel finding it difficult to lift its fecal load up over the hill of the hepatic flexure and overcome the resistance of the valve-like splenic flexure. Cannon's antiperistaltic current may be a factor here.

Our *x*-ray studies were made at the University Hospital by the roentgenologist of that institution, Dr. Frank Bissell, and we wish to express our appreciation of his great help in the study of this condition.

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MEMBRANOUS PERICOLITIS*

By Arthur N. Collins, A. B., M. D.

DULUTH, MINN.

In the light of thousands of operations undertaken, during the last two or three decades, for the relief of diseased appendices, we are virtually just beginning, within the last few years, to recognize a condition in the right abdomen which bids fair to challenge many of our diagnoses of chronic appendicitis. It is with this condition we are to deal here, namely, *membranous pericolitis,* a subject at present offering liberal interest from a surgical standpoint.

The visible entity thus mentioned, and what is of interest just at this point, is a thin, delicate membrane, veil-like and vascular, of variable transparency, and of variable extent, reaching up onto the gut from the parietal peritoneum and running along the outer side of and sometimes enveloping the cecum and proximal or ascending colon, usually the latter. It is commonly known as Jackson's Veil. This veil-like membrane is sometimes thickened in places into plaits or folds, band-like, the plait or band thus formed taking a direction either transverse or obliquely downward and inward across the long axis of the large bowel thus implicated. By passing the hooked index-finger upward, or downward, in the trough alongside the colon, some of the loose membrane may be gathered up, as the gut is freely moveable within the veil. It will be found that the above-mentioned plait or band-like fold thus formed presents considerable tensile strength. Such plaits or bands may form and remain permanent, or they may be formed temporarily by a difference of tension at one or more points along the gut. The difference of tension may be shifted from point to point along the gut, and the bands correspondingly shifted, by peristaltic waves, by gas distention, or fecal accumulation, or by a combination of these. They are pathological in the sense that they may embarrass peristalsis by compressing the intestine, may narrow its lumen in one or more places, obstruct the passage of feces and gas, and, by pulling upon the parietal peritoneum, cause pain. These plaits or bands therefore are to a large extent responsible for the clinical picture accompanying the so-called membranous pericolitis. Extremes

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of this condition are described by various writers interested in this subject, one notable case being that of Jackson's in which the lumen of the gut was so constricted as to be impassable to the fecal column.

In the event of more extensive involvement, the membranous envelopment is said to extend along the large bowel, even to its distal portion, though the writer has never encountered this extreme, nor is it frequently mentioned in the literature.

Flint divides these veils into three types:

1. The most common form, which extends from the parietal peritoneum along the lateral margin of the colon, particularly near the hepatic flexure over into the lateral and ventral aspects of the colon and cecum, the caput often being free, though the whole, including the appendix, may be enveloped.

2. The second type occurs lower down than the first, and does not, as a rule, extend high up on the ascending colon.

3. The third type, which he considers relatively rare, passes over from the ventral aspect of the colon and is continuous with, or apparently adherent to, the omentum. This type may hold the ascending and proximal transverse colon side by side, with a sharp angulation at the hepatic flexure if the latter is long and looped, producing the "double-barrelled" formation spoken of by Gerster.

Jackson, Lane, Gerster, Mayo, Pilcher, Binnie, and others have recorded their respective observations on and beliefs concerning the etiology of this condition, but as yet an agreement upon the etiology remains to be established.

Several writers look with favor upon the chronic inflammatory origin, Pilcher's view being frequently quoted. He considers membranous pericolitis to be the result of long-continued or oft-repeated mild infections of the peritoneal coating, which envelops cecum, colon, sigmoid, and appendix, the infection being transmitted through the intestinal wall. To this are added by Benjamin the physiological factors of local stasis and the law of osmosis.

Flint states that while the etiology of these veils has been supposed to be due to an inflammatory process originating in the colon or adjacent structure, as a matter of fact they are congenital. They originate after the rotation of the gut from the secondary fusions of the peritoneum, when the cecum becomes attached to the posterior wall just over the kidney and under the liver.

Jackson quotes Mayo as inclined to the view that the membrane is the true peritoneum, which, as the cecum descends, failed to settle itself closely in the normal way to the gut wall, but, remaining loose, acquired the peculiarly excessive vascularization. Jackson raises the question here that if this were correct we would wonder why similar peritoneal laxity did not extend to the cecum as well.

Flint proceeds further to state that in some instances these attachments are excessive and extend out over the ventral surface of the first part of the large intestine, resulting, with the subsequent descent of the cecum, in their being drawn out in the form of a thin veil or membrane. In this process the blood-vessels take part, a fact which explains the long, unbranching course from their origin on the parietal peritoneum, downward and forward into the cecum or colon, where they communicate with those of the intestinal wall. Here the secondary union between the two layers of the peritoneum usually spares the cecum, extends on to the colon, and gives rise to the commoner form of the membrane.

Lane's explanation for this condition deals chiefly with chronic splanchnoptosis, not necessarily inflammatory, with an effort of nature to support the intestine by what he called "adhesions" and to counteract the tendency to ptosis. The "adhesions" intended by nature to be conservative and protective sometimes go too far and become obstructive.

We have Crummer and Stumm for authority that enteroptosis is fairly common, Crummer stating, however, that symptoms occurring in an individual with visceroptosis are purely disturbances of function, and not dependent on changes in structure.

Jackson, in an excellent article of recent date, places these and various other opinions as to the etiology under three headings, namely: (1) congenital, (2) mechanical, and (3) inflammatory.

The congenital theories are not convincing in every respect. It is frequently stated that the membrane is part of the peritoneum, which has been pushed ahead of the cecum in its descent from its sub-hepatic position to its position in the right iliac region. Jackson, however, mentions one of his cases in which "the membrane, passing from the colon across the posterior wall, went as far as the jejunum, which was likewise completely invested for about eight inches of its distance immediately after its beginning beneath

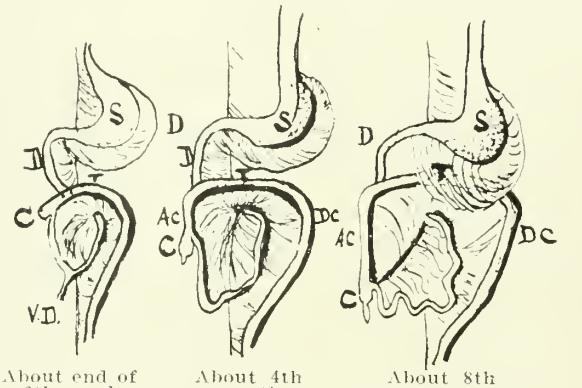
the transverse colon." Ryan, also, reports one of his cases, a woman of 38, who presented symptoms of a chronic cholecystitis and chronic appendicitis. At operation there was found a well-developed membrane extending from a point about three inches above the caput coli to a point on the transverse colon two inches to the left of the median line; the transverse colon had been raised until it occupied a position approximating the anterior border of the liver, the gall-bladder covered, and the membrane spreading over the anterior surface of the stomach. How common are such cases it is difficult to state at this juncture, but a reference to embryology is of interest. About the third month or a little later the cecum begins gradually moving downward from its sub-hepatic location toward the right iliac fossa. Up to this time there has been no ascending colon, the large gut consisting of cecum, transverse and descending colon, and rectum. The downward migration of the cecum is due to the growth of the colon in the same direction. In this manner the ascending colon is gradually produced, it having developed to such an extent in the seventh month that the cecum lies below the right kidney, while in the eighth month it passes the crest of the ilium. With the descent of the cecum the terminal part of the ileum necessarily alters its position to a like degree.

Bearing this in mind and following the development of the small intestine, we find that it begins to exhibit flexures as early as the fifth week; and by the end of the sixth week the duodenum is well indicated as a segment of the gut-tube. From this time the development of the small intestine, aside from its histological characters, consists chiefly in increase in length with consequent modification of its mesentery. By the fourth month the small intestine lies entirely within the abdominal cavity.

It appears, therefore, that the small intestine descends and lies in its wonted position fairly well developed and with a well-developed mesentery some three or four months before the cecum makes its descent, or the ascending colon is formed. Cases such as the one of Jackson's or Ryan's, just quoted above, would be difficult to explain on the congenital theory of cecal descent.

There are other references in the literature tending to place the congenital theory in disfavor. Grant, in discussion at the Western Surgical Association meeting, mentions a case in which he found the tip of the appendix involved in a coating of this membranous formation. The writer has also recently seen a brief account of a patch of the membranous formation on the peritoneum of the anterior abdominal wall, the condition having been discovered by accident while operating for some pelvic or other abdominal condition.

That there are mechanical factors in connection with the clinical picture accompanying membranous pericolitis, and that there are evidences of mechanical impediment to intestinal activity to be found at operation, is not to be denied, but should they not be regarded under the classification of resultant rather than causal factors in the specific etiology? Mayo (W. J.) observes that the theory of mechanical causation alone is insufficient explanation, which is established by



S. stomach; D, duodenum; C, cecum; Ac, ascending colon; T, transverse colon; Dc, descending colon; VD, vitelline duct.

the fact that, as a rule, none of the ordinary results of mechanical obstruction exist, such as muscular hypertrophy of the wall of the bowel, etc. Quite the opposite condition exists, the bowel being thin and ballooned.

In support of the infection theory, there is well-established evidence that infection may be carried through the intestinal wall, even sufficiently to produce marked suppurating lesions. The findings by Bittorf and Baümler, Lejars, and Donaldson of perisigmoidal abscesses or intramural abscesses of the ileocecal valve or ascending colon, are in support of this fact. It is not going far to assume therefore that the large intestine may absorb through its walls, from its lumen, an infectious or toxic agent capable of stimulating the production of the membrane in question, whether by edematous infiltration, sub-serous exudation, mild inflammatory reaction, or "chronic reaction to irritative influence," as capable, let us say, considering the physiology of absorption, as it is capable of

absorbing salt solution by the method of proctoclysis or of "culling out the last nutritive remnants" in the process of digestion.

A reference at this point to some anatomical and physiological developments is of interest. The blood-supply of the ascending colon is by way of the right colic artery, a branch of the superior mesenteric, anastomosing below with the ileocolic and above with the branches of the middle colic. The lymphatic drainage extends into the lymphatic glands at the base of the right colic artery and also into the ileocolic group. The above points are brought out by Mayo in his discussion of metastasis with reference to tumors of the cecum.

The lymphatics accompany the vessels, flow from the periphery to the center, functionate as absorptives, and are the principal carriers of septic or toxic material. Moreover, lymphatic activity is greater in youth than in advanced life.

Concerning accurate intestinal physiology, we have heretofore been very much in the dark, but in recent years a great deal of befogged physiology has been clarified by the researches of Starling, Melzer, Auer, Cannon, and others. From the recent publications of Cannon the writer has taken the liberty of quoting somewhat freely.

It has been demonstrated by Cannon and others, in a large number of animal experiments, that there is a definite antiperistalsis, or anastalsis, of the large intestine. The first food to enter the colon from the small intestine, in the cat, is pressed by antiperistaltic waves towards the cecum, and all new food as it enters is also affected by these waves. The cecum is the seat of extensive bacterial fermentation. Likewise this proximal part of the colon is a region from which liquids are absorbed. In the cecum and ascending colon the stagnant mixture of indigestible matter, food, cellulose, water, and bacteria, presents an ideal condition for putrefactive and fermentative decomposition. Indeed, Folin and Denis have recently shown that ammonia in the portal blood arises, to a large degree, in the colon, in which there is an abundance of ammonia developed from bacterial putrefaction. The contents of the small intestine are normally liquid, and when the liquid feces have reached the colon practically all of the serviceable substances have entered the body, and the fluid content is unnecessary. Hence in the cecum and proximal colon the absorption of the greater part of the remaining fluid content takes place. Passing on to the transverse colon, in man, the contents are generally as firm as those of the rectum, according to Roith.

Sterlin, quoted by Cannon, has pointed out that the cecum is the widest part of the entire intestinal canal; also that this portion of the large intestine retains the material longer than any other part of the alimentary canal. He has produced very significant *x*-ray evidence to show that the proximal colon retains part of the bismuth food after the rest has passed on into the distal colon.

Rieder has recently been able to bring evidence, on the basis of his *x*-ray studies, that anastalsis actually does occur in the human colon, and his observations are wholly in accord with those of Cannon and Elliott and Barclay-Smith on lower animals.

The circular coat of the ileum at the point of junction with the colon is thickened, and it was suggested by Keith that in most animals, probably including man, not merely a mechanical valve but a true sphincter separates the large and small intestine. Mayo, in 1900, called attention to a contraction of the ileocecal orifice as a cause of certain intestinal phenomena. Since Keith's suggestion, Elliott has proven physiologically the existence of such a sphincter in the dog, showing that this sphincter was under separate nervous control. We are therefore led to see, in the presence of this sphincter, a pertinent reason for Cannon's failure to observe, in his experiments, the passing of bismuth food, when present in small amounts, backward from the colon into the small intestine.

What then is the explanation for the onward progress of fecal material in the colon toward the rectum? The material accumulates in the proximal colon; and it is at first confined there by antiperistaltic waves. As more food is added from the small intestine, it is forced on against the antiperistaltic current. Even in starvation the proximal colon does not appear to be empty, according to Cannon's observations.

Considering therefore these physiological factors, we discover that several features are forced upon us for attention in the direct line of possible etiology in membranous pericolitis: (1) The cecum is the widest, most roomy portion of the intestinal tract, a pouch in fact, containing material more liquid than the succeeding portion of the large gut; (2) antiperistalsis favors stasis in the cecal pouch and ascending colon; (3) the absorptive function of the cecum and ascending

colon; (4) a rich bacterial flora in a liquid medium together with decomposing food residue with their resultant chemical or bacterial toxins; (5) a lymphatic drainage, which may be incapable of hurrying the absorbed toxic products away from the viscus.

All of the above therefore seems to justify the addition of another important factor deserving consideration in the etiology of membranous pericolitis; namely, that it is a reactionary formation.

The view that colitis, pre-existent or present at the time of examination in a given case, is an etiological factor deserves consideration. Whether a clinically recognizable colitis exists or not, however, the physiological phenomena above given would be sufficient to account for many beginning cases of membranous pericolitis. These cases may not be discovered unless at operation for other conditions in the abdomen, or unless they reach a more advanced stage, causing a chain of symptoms sufficient to arouse attention.

The paucity of case-reports in the literature of this membranous formation occurring in children prompts the writer to report here the case of a boy of three who had been under treatment several months for tuberculosis of one ankle and both elbows. Death occurred from bronchopneumonia. At autopsy a distinct, freely moveable vascular membrane was found extending about three and one-half inches along the outer part of the ascending colon. It was recalled at the time of autopsy that the child had been markedly constipated during his stay in the hospital, always requiring more than average doses of cathartic to bring about satisfactory dejections.

The writer recently had occasion to operate upon a girl of ten years who came to the hospital from out of the city, sent in by Dr. Tanner. Four days previously on arising in the morning she complained of headache and pain in the abdomen. Vomiting occurred only after taking castor oil. Her temperature the same evening was not recorded, though she is reported to have been delirious. The following day the temperature was 101°. When she reached the hospital the temperature was 100°, and pulse 90. Abdominal tenderness was confined to the ileocecal region. There was no marked muscle stiffening though there was a little more resistance on the right side than elsewhere. No food had been taken for four days. At operation the following morning the appendix was found free, in length about three and one-half or four inches, tortuous, and with a short meso-appendix. There were no macroscopic signs of inflammation, and no concretions could be palpated within the lumen. A vascular membranous veil extended along the ascending colon for two or three inches. It was freely movable upon the gut and could be hooked up on the finger to form a fold or band amply strong enough to constrict the intestine. The appendix was removed, the band divided, and the intestine freed of its confines. Good recovery followed, with uneventful convalescence. She returned home with her parents on the fourteenth day, apparently free from pain or soreness.

A great number of diagnoses of "appendicitis" have been, and undoubtedly still are being, made where the location of the trouble is extra-appendiceal, usually in or surrounding the cecum or ascending colon. Gerster cites five such cases in his own experience. It has happened in the experience of everyone who is interested in this subject. Tyrode touches a very important point when he says: "Given the great frequency of cecal inflammation, it becomes easy to understand the overwhelming frequency of appendicitis." He believes colitis to be much more frequent than appendicitis, and, in fact, is inclined to think it is usually the etiological factor in appendicitis. Fitz' view regarded appendiceal inflammation as the primary lesion and discouraged the view that the cecum was involved to any extent.

As a matter of fact, the removal of the appendix is not always followed by relief of the symptoms preceding the operation. Graham and Guthrie report that 22.5 per cent of the cases at the Mayo Clinic have symptoms persisting after operation. Of the cases reported in their series, 5.2 per cent showed no improvement whatever following appendectomy. These are the only statistics at the writer's command at the time of writing, but the figures are reliable and are based on some 200 cases, 115 of which had been operated upon for a year or more.

Solenberg observes that typhlocolitis is seen as well after appendectomy as before. Wilms ventures the opinion that 30 per cent of so-called cases of chronic appendicitis are those of chronic constipation having a movable, dilated, and prolapsed cecum. He therefore treats them by cecopexy, with the result that in 52 cases the pain disappeared in all, and the constipation in 75 per cent. Klemm, Hausmann, and Stierlin are practically in accord with Wilms.

Hofmeister emphasizes the fact that chronic perityphlitis and chronic pericolitis form bands of adhesions which delay the normal passage of

intestinal contents, and are much more frequently the cause of so-called chronic appendicitis symptoms than the disease of the appendix itself.

The frequency with which this condition is confused clinically with appendicitis has led the writer to set down the symptomatology in tabular form in the following table:

APPENDICITIS	MEMBRANOUS PERICOLITIS
Pain: May be at first diffused, umbilical, or epigastric; paroxysmal; later in appendix region. Bladder and rectal tenesmus common.	Variable in severity; diffused over right side of abdomen; accentuated at cecum and hepatic flexure; rarely epigastric. Following attack may be moderate pain and discomfort constantly. Bladder or rectal symptoms very rare.
Tenderness: Localized directly over appendix; often a focal point.	Diffuse. No focal point of tenderness. Rectus rigidity rare.
Rigidity: General at the outset; becomes localized with limitation of infection.	
Fever: Usually elevated temperature.	Usually none.
Tumor: Mass frequently present (late).	No mass. Pressure over cecum frequently elicits gurgling and relief.
Gastric Disturbances: Usually an early symptom; ceases in a few hours; never continuous in favorable cases.	Usually chronic gastric disturbances, which may include vomiting and sometimes blood.
Constipation: The rule.	Marked constipation to obstipation the rule. In long-standing cases alternating mucous diarrhea.
Leucocytosis: May be present and steadily increase to 20,000 or more.	No leucocytosis.

In addition there may be, in cases of membranous pericolitis, loss of weight, strength, vitality, and ambition; headaches of greater or less severity may occur; and the patient may become nervous, irritable, and even melancholic.

The diagnostic evidences afforded by bismuth in the intestine and *x*-ray transabdominal exposure are in some cases valuable aids. For the various methods of obtaining such radiographic information one needs but to refer to the articles of Pilcher, Frazer, Pancoast, Schwarz, Codman, and many others who have done much work along this line. The writer has utilized the *x*-ray with distinct advantage in several cases.

Finally it should be taken into account that many of these subjects who exhibit this condition of membranous pericolitis show a general tendency toward some of the characteristics of status lymphaticus as described by various writers, notably von Neusser in his excellent monograph. There are such cases, according to von Neusser, which have passed through many anesthesias and sicknesses without death and have died of advanced age. It should also be noted that there is a striking similarity in these cases of membranous pericolitis to those described by Eppinger and Hesz as "vagotonics," those individuals who exhibit a state of instability more especially of the chromaffin system or the adrenal sympathetic nervous system. They are more susceptible to numerous ailments than individuals with normal or more stable visceral nervous systems. One is apt to find that the hands are large, the fingers long and thin, the feet of the same general character and often flat-footed. There may be a tendency to sweat easily, especially after nervous excitement, and a hypersusceptibility to pilocarpine. There is frequently demonstrable enteroptosis. The thorax is long and presents costæ fluctuantes (ninth) often cor mobile, pendelherz (pendulum heart). In women prolapsus uteri may be found and the breasts often small and underdeveloped and the nipple very large. Men and women are affected with about equal frequency. The form of the abdomen is often narrow above, and broad below; the muscle-wall lax and atonic. The intrinsic explanation of vagotonia, or functional increase of tonicity in the automatic nervous system, is to be sought in derangements of the internal secretions, especially during the developmental period.

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PROGRESS IN MEDICINE

Abstracts of medical reprints and articles on file in the library of the Department of Medicine, College of Medicine and Surgery, University of Minnesota.

UNDER THE CHARGE OF

DR. CHAS. LYMAN GREENE

Professor of Medicine and Chief of the Medical Clinic

These abstracts are read and discussed at the departmental meetings held monthly at the University Hospital.

THE PREMONITORY SYMPTOMS OF THROMBOSIS OR EMBOLISM

BY DR. FELIX KRAEMER, FRANKFURT A. M.

Deutsche medizinische Wochenschrift, Nov. 28, 1912

Kraemer confirms and illustrates with cases Mahler's observations of a step-like rise of pulse and temperature before thrombosis or embolism, and Michael's premonitory subjective symptoms of headache, restlessness, gastric disturbances, drawing pains in the legs, and pain beneath Poupart's ligament (involvement of the femoral vein).

Kraemer summarizes his observations as follows:

1. Before every operation or child-birth, the patient's exact pulse and temperature should be known.
2. After the operation or child-birth, the pulse and temperature should be taken with especial care at least twice a day, preferably by the physician himself.
3. Subfebrile temperature with an increased pulse-rate should be a warning of a possible beginning thrombosis unless these symptoms can be explained by some local infection.
4. These symptoms are also a contra-indication for early rising after an operation or child-birth.
5. A patient complaining of the subjective symptoms named above demands extra watchfulness and care.

E. J. HUENEKENS.

UEBER EINE WESENTLICHE VERBESSERUNG DER BEHANDLUNG CHIRURGISCHER TUBERKULOSE MIT STAUUNGS-HYPERAMIE

BY DR. AUGUST BIER,

BERLIN

Deutsche medizinische Wochenschrift, Nov. 24, 1912

In this article the author strongly advocates the use of the iodide salts internally in the treatment of surgical tuberculosis by passive hyperemia. He draws attention to the fact that in the past the disadvantages of the hyperemic treatment have been the liability to the development of "cold abscesses," the tendency to the overgrowth of granulation tissue in the case of open ulcers, and the possibility of severe acute infections. He states that he is now in a position to declare with certainty that the internal administration of the iodide salts does away with these complications, particularly the first two; and, further, that by their use long-continued hyperemia can be carried out, which has not been possible without them.

He recommends that three grams of the sodium or potassium iodide be given daily, in the case of adults, and that the passive hyperemia be maintained for four hours at a stretch three times a day. In order to be effective the constriction producing the hyperemia must be so powerfully applied that it will lead to marked hyperemia and edema, but, at the same time, must not be powerful enough to cause pain or discomfort.

The well-known results following the use of the iodides in syphilitic connective tissue overgrowths first led Professor Bier to try them combined with passive hyperemia in the severe cases of joint tuberculosis. He bases his belief that by the induced hyperemia the diseased joint becomes flooded with blood containing the iodide salt upon the findings of Joseph and Schliep, who flooded the circulation with KI and salicylic acid, and, after producing a transudate by passive hyperemia, found that the synovial fluid contained these drugs.

In a series of 18 cases, including 8 of knee-joint tuberculosis and 3 of severe tendon-sheath tuberculosis, treated with KI and passive hyperemia (the latter for 12 hours daily) one only developed a small "cold abscess." The combined employment of these measures, Bier believes, marks a great advance in the treatment of all so-called cases of "surgical tuberculosis."

ERNEST T. F. RICHARDS.

EXPERIENCES WITH DUODENAL ALIMENTATION

BY MAX EINHORN, M. D., NEW YORK

Medical Record, March 9, 1912

Reprints of a number of very interesting cases are given by Einhorn in substantiation of his two previous papers on the same subject. The duodenal pump or tube was used in each case with very gratifying results, in those in whom the ulcer was located in the stomach, as well as the cases of duodenal ulcer. Einhorn further states that the treatment is useful in nervous vomiting and a tonic dilation of the stomach. In a number of the cases in which the thread test was positive he tried the local influence of protargol upon the ulcerated surface by coating the tube, at a point corresponding to the ulcer, with a solution of protargol, agar, gelatin, and glycerine, and found that such cases do better than those in which the protargol treatment was not used.

The nutritive medium used in the feeding was 200 c.c. milk, one egg, 15-30 grams of lactose every two hours. In those in whom he found an idiosyncrasy against milk he used oatmeal gruel and soups as a substitute. He was able to note objective improvement in three ways.

1st. In some cases in which the pylorus could be felt as a small oval swelling (about the size of a walnut), probably caused by a spastic condition, the tumor disappeared during the period of alimentary feeding and did not return afterwards.

2d. In nearly half of all the ulcerations of the stomach and duodenum in which, before duodenal feeding, the thread test was positive, it became negative after treatment. This would point most likely to the fact that an actual cure of the ulcer had taken place.

3d. In some marked cases of ptosis and dilatation of the stomach a considerable change of the size and position of the stomach was observed during the period of duodenal alimentation.

JOHN E. HYNES.

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JUNE 15, 1913

THE A. M. A. TO BE ENTERTAINED BY THE ST. PAUL PHYSICIANS

The members of the American Medical Association and their wives and guests are to be entertained handsomely at the Auditorium in St. Paul by the profession in that city.

There will be a reception followed by a musicale, and a first-class and polite vaudeville show to be followed by a smoker (not poker). That the entertainment will be quite up to the high mark always attained by St. Paul when they are taking care of out-of-town guests, is due to the fact that Mrs. Archibald MacLaren is chairman of the ladies' committee, and Mrs. J. W. Chamberlin is secretary.

It is fair to assume that Dr. J. W. Chamberlin will be a prominent host, together with a lot of other well-known St. Paul physicians, who will look after the comfort of the men.

Both Minneapolis and St. Paul are preparing for a large crowd and it is to be hoped they will not be disappointed.

IS EVERY ONE CRAZY?

Professor Bieuler, of Switzerland, recently delivered an address before medical men at the new Henry Phipps Psychiatric Clinic at Baltimore in which it was reported that he said that all persons were insane. He explained that in those who were considered normal people, irrational thoughts are kept under control by logical reasoning. He thinks that none of us, consequently, are very far from being insane, and that what logic we have serves to keep the autistic or insane thinking in the background, and that any deviation from reality becomes autistic. These statements presumably are based upon psychology, rather than upon any pathological or etiological grounds, simply a discussion of how the average person keeps his mental balance.

The statement of Dr. Bieuler is not new and has probably been advanced many times by other alienists, and is evidently a part of the belief of a great many lay people. If this assertion is taken literally it explains why there are so many controversies going on in the world, carried on by self-styled reformers, literary cranks, publishers of unnecessary and needless pamphlets, magazines and other periodicals. It probably also explains why there is so much mental unrest, such as that exhibited by the militant suffragettes in England, the political reformers in America, and the self-appointed educators of public opinion who occupy more or less conspicuous chairs in and out of educational institutions. All these instances evidence the fact that they are not logical in reasoning, or they permit their ideas to flow in easy channels and to run riot without restraint. This means a radical difference of opinion and opinions with insufficient foundations, and, more definitely speaking, opinions which are not the outcome of a thinking mind.

Someone else has also recently said that the insane are increasing very rapidly, and that, in spite of all the new methods and new ideas and efforts of reformers, the insane will eventually dominate the situation and the sane mind will be in the background, helpless and powerless to overcome his autistic dominator, and that eventually the world will come to a state of chaos. This is the pessimist's view. After a time it seems quite likely that the optimist, who is now watching the tide flowing in the opposite direction, will become tired of the hubbub and change and foolishness of the world, and will, in some way, devise a method for restraining the unnecessary mental boiling-pot, which is likely to scald as it runs over, until the fire is put out.

It has been said, however, that the insane are the happiest people on the earth, and this statement refers principally to those who suffer from excitement or from the effervescence of ideas, or those whose reasonings are governed by mild and happy delusions. If this be so, why are we needlessly anxious over the happy insane?

Unfortunately, there is a large class who enjoy making trouble for others. The majority of these are harmless and the minority are dangerous. Aside from the depressive states, the larger number of the insane are well protected and well cared for. It is probably true, as Dr. Bieuler says, that each of us has his fairy tale when by himself. We hide it from strangers. We like to believe that we are rich or good-looking or of great eminence. The imprisoned fairy guides our taste, shapes our clothes, and makes us sign our names with a flourish. He evidently includes the poets in a different class, when he says they are "nothing but grown up children."

REMOVAL OF A GOITER AND SCARLET FEVER AS FACTORS IN THE ETIOLOGY OF MULTIPLE SCLEROSIS

The etiology of multiple sclerosis has been for years an unsatisfactory and speculative problem. With a better understanding of infectious processes it is quite possible that many of the antiquated factors outlined in text-books may be eliminated, and the true causes may stand out as easy of solution as in many other bacterial diseases.

Strümpell ascribes no importance to exogenous factors and regards the disease rather as an endogenous and constitutional one, and, with Ziegler, he believes that a congenital tendency to proliferation of glial tissue is of prime importance.

Undoubtedly this fundamental tendency holds good in multiple sclerosis, as in many other progressive nervous diseases, but the cause which precipitates a definite sclerosis of the nervous system is worthy of closer analysis. How and why an infection selects certain tissues is beyond our comprehension. No one has been able to solve the problem as to the relation of syphilis to tabes and general paresis, but the fact remains that certain individuals show these tendencies. Numerous authorities contend that disseminated sclerosis may be caused by a variety of infections or toxins, but not enough stress or emphasis has been laid on this point.

In a case recently reported, it was believed that a typical syndrome of multiple sclerosis was due to an attack of scarlet fever. A boy, seven years old, was in bed and unable to walk or co-ordinate his movements for a year after his infection. He apparently recovered, but later developed all of the cardinal symptoms which usually accompany multiple sclerosis: jerky, coarse movements; hesitating speech; nystagmus; marked inco-ordination in legs and arms, with a positive Romberg sign; exaggerated deep reflexes; and emotional disorder.

A second case, a woman of 38, who gave a negative history of infectious diseases other than mumps and whooping-cough in childhood, had attacks of migraine for years. She had a simple goiter, not exophthalmic, which was removed in September, 1912. She had no previous symptoms of multiple sclerosis, but within a month after the removal of the goiter she had weakness of the legs, inco-ordination, Romberg, marked nystagmus, paresis of the internal rectus in one eye, dimness of vision, scanning speech, impairment of bladder-control, occasional involuntary bowel movements, and a decided emotional condition manifested by excessive laughter. She had no history of syphilis and no other cause than the removal of her goiter. It seems quite probable that this alone was the precipitating factor which accounted for her disseminated sclerosis.

A thorough study of these cases would probably show that a large number of cases of multiple sclerosis were due to infectious and toxic states, rather than to trauma, fright, exposure, or fatigue.

DR. HARRY A. TOMLINSON

Dr. Harry A. Tomlinson, formerly superintendent of the Saint Peter State Hospital for the Insane and recently superintendent of the State Hospital for Inebriates, died at his home in Willmar, Minn., May 30, 1913.

At the time of his death he was 57 years old and had made a name for himself in the study and care of the insane, that will be long remembered among his large circle of acquaintances throughout the United States.

Dr. Tomlinson graduated from the University of Pennsylvania in 1880 and established himself in general practice in a small town in Pennsylvania, but he soon gave up this work to identify himself with the institution at Frankfort, Pa.

He came to St. Peter in 1890 as assistant superintendent at the State Hospital and two years later was given charge of the institution, which he afterward made famous as a hospital for the insane. He inaugurated new methods of study and treatment, established laboratories and hospital facilities, and recreated an asylum into a modern hospital with an adequate training-school for nurses.

The institution grew in prominence and vigor and was recognized as a model of its kind. He was an indefatigable worker and organizer, and everything was orderly and systematic under his care. He literally wore himself out in his efforts to perfect his work and for the past year superintended the plans and buildings of the new hospital and farm for inebriates, and in the meantime he kept the State Hospital at St. Peter up to his ideas of a high standard.

He was a member of the American Medical Association and was frequently sent about the country as an Association lecturer. As a member of the American Neurological Association he did much to bring the alienist and the neurologist into closer touch.

He was an active officer and worker in the Association of Hospital Superintendents and at one time was president of the Minnesota State Medical Association, a member of the American Academy of Medicine and of the Minnesota Academy of Medicine, as well as a member of county and district societies.

His writings on medical topics were wide, and he did not hesitate to advance his views on general medical problems, whether directly or indirectly associated with his special line of work.

His views on pathology were more or less unique, but fundamentally sound. He was an ardent debater and speaker, a genial and wholesome companion, and a man who will be missed by the citizens of Minnesota.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The Academy met at the Town and Country Club on Wednesday, May 7th. Dinner was served at seven o'clock, and the meeting was called to order promptly at eight o'clock by the secretary, as both the president and vice-president were absent. On motion Secretary Dunning was made chairman pro tem. There were but twenty members present, as it was a stormy night. There was one guest.

Owing to the fact that the American Medical Association is to convene in Minneapolis June 17th it was thought best to omit the June meeting of the Academy this year, and a motion to that effect was carried unanimously.

Dr. H. P. Ritchie reported a case as follows:

I wish to report a case which seems to show a splendid result by the use of Young's punch-operation for the relief of urinary obstruction. Young's recent reports of its use on 100 cases recalled to our minds that this suggestion was made two or three years ago. It seemed at that time to be a modification of the Bottini operation, which had given so many poor results that it had practically fallen into disuse.

In our list of cases of prostatic obstruction there were several which were subjected to the dangers and risks of a formal prostatectomy, in which the obstructing part was so small and trivial that the suprapubic or perineal removal seemed a most elaborate procedure, and it has been in my mind that a certain few selected cases might be relieved by work through the urethra. I obtained Young's instruments and had the opportunity to try them out upon a case which I thought to be, on cystoscopic examination, ideal for its use.

This man, of fifty-six, gave a story of almost complete obstruction for the previous seven months. He was able by a great deal of forcing to pass about two ounces of urine. At times he would have to make the attempt every two hours, and when he came to us he was in a state of exhaustion, due to loss of sleep and the effect of this condition. His bladder was constantly distended with many very large diverticula. He was operated upon at St. Luke's Hospital. Young's punch was used, removing a cylinder of the part which obstructed. A two-way catheter with constant irrigation was placed in the bladder for forty-eight hours. The night following its removal he suffered a severe urethral chill and ran a temperature for two or three days, but this subsided. While in bed he began to pass urine freely; upon getting up on the commode he was able to pass seventeen ounces at one time with the feeling of entirely emptying the bladder. He was able before leaving the hospital to go all night and then empty the bladder in the morning, a thing he had been unable to do for very many months previous.

It seems to be a most satisfactory result, involving but little risk, and while the cases suited to its use may be few, it, nevertheless, seems to me to be ideal for a certain number. This man has continued to improve and it looks as though his relief were permanent.

Dr. A. E. Benjamin read a paper entitled, "Factors in the Production of Post-operative Intra-abdominal Adhesions." The subject was discussed by Drs. Dunsmoor and Corbett.

Dr. John C. Staley then read his inaugural thesis entitled "Chronic Mesenteric Thrombosis." The subject was discussed by Drs. White, Corbett, and Dunsmoor.

Dr. Fred L. Adair read his inaugural thesis entitled "Remarks on the Pathology of the Ovum, with Report of Three Cases." The subject was discussed by Dr. Scammon, a guest of the Academy, and by Drs. Robertson and Litzenberg.

A. W. Dunning, M. D., Secretary.

MINNESOTA NEUROLOGICAL SOCIETY

The regular meeting of this Society was held at the Town and Country Club the evening of May 15th, with eleven members present.

Dr. Ball presented the following case of myasthenia gravis:

Two years ago the patient first felt stiffness in the legs following any special exertion. One month ago he could not walk far without unusual weariness. Two weeks ago he had double vision, and one week later the left eyelid drooped and very shortly afterward the right one also. Two weeks ago his voice became impaired, and since one week later he has had much trouble in chewing. He has always been much better in the morning than later in the day. At present there are complete ophthalmoplegia of the left eye and paralysis of the lateral movements of the right eye. The pupils react to light and accommodation. Some of the muscles give a myasthenic reaction and others do not.

Dr. Crafts reported a woman who two years ago had stiffness of the right leg and, later, pain and numbness, which gradually grew worse. Last fall the left leg also became involved. At present her legs are drawn up on the abdomen, and there is very distinct hypertonus. She has severe pain up to the 9th thoracic vertebra, and a good deal of numbness below this point. The tendon reflexes are increased. Both plantars are extensor. Control of the bladder and bowels is very fair. There is no deformity of the spine. The diagnosis is spinal tumor.

Dr. Sweeney gave a report on the etiology of nervous diseases. He found much confusion as respects the opinions of different men on the etiology of nervous diseases, and he believes that many of the theories were built up on post hoc, propter hoc principle. It was Dr. Sweeney's opinion that certain deficiencies in the germ plasm are the cause of many nervous diseases, and in this connection he instanced the experiments undertaken in feeding alcohol to guinea-pigs with the invariable result of a distinct loss in quantity and quality of offspring. Neuritis, myasthenia gravis, multiple sclerosis, and other similar diseases he looked upon as due to toxins of various kinds, which might be of exogenous or endogenous origin. He believed that much was yet to be learned concerning the effect of the ductless glands on the general bodily condition. Though only a small proportion of the population is insane a large percentage is distinctly deficient and this deficiency he ascribes to deficiencies in the germ plasm.

Dr. Scott gave a report on the localization of muscle-sense in the cerebellum. Though there is a general impression that the cerebellum has to do in some way with muscle conditions there is little definite knowledge because so little is known concerning the structure of the cerebellar cortex and the relation of the corresponding parts in man and the lower animals. Experiments were made with the removal of the entire cerebellar cortex, and though considerable was learned from this no definite localization-centers were developed. In 1907, experimenters began to remove small parts of the cerebellar cortex with more satisfactory results. Electrical tests were unsatisfactory, as only very powerful currents gave any results. The final conclusion was that certain deep centers of the cerebellum are related to different groups of muscle fibers just as in the brain.

A. S. Hamilton, M. D., Secretary.

BOOK NOTICES

Brain and Spinal Cord. A manual for the Study of the Morphology and Fiber-Tracts of the Central Nervous System. By Dr. Med. Emil Villiger, Privatdozent in Neurology and Neuropathology in the University of Basel. Translated by George A. Piersol, M. D., Sc. D., Professor of Anatomy in the University of Pennsylvania. From the Third German Edition. Cloth. Price, $4. Pp. 289, with 232 illustrations. Philadelphia; J. B. Lippincott Company, 1912.

Medical students and medical practitioners have long felt the need of a work on the nervous system, printed in English, authoritative, comprehensive, and well illustrated and the need is apparently fulfilled in this volume. The book is divided into three parts, namely; morphology, fibre tracts, and serial sections of the brain. The illustrations in all parts are numerous and well done and this is especially true of part 3, which consists almost entirely of a series of microscopic pictures of vertical sections of the brain, from the anterior end of the corpus callosum to the caudal end of the medulla oblongata. It is to be regretted that a similar series

of reproductions of horizontal sections has not been supplied.

The text is concise yet full and complete, and the translator's work has been well done so that the book is entirely free from those clumsy expressions and obscure statements so common in translated works. To the translator we also owe the inclusion of the bibliography which gives sufficient reference to those desirous of consulting original papers and the more elaborate systems pertaining to the anatomy of the nervous system.

—Hamilton.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth Edition, thoroughly revised. Octavo of 1,100 pages, with 1,050 original line drawings. Cloth, $6.50 net. Half Morocco, $8.00 net. Philadelphia and London: W. B. Saunders Company, 1912.

It is a pleasure to review a book of the caliber of this volume. It is hardly necessary to say a great deal about it when one knows it has run through four editions, this being the fifth edition since 1905 if my memory serves me right.

Dr. Ashton writes in a delightful and interesting style. The reader is not at sea after he is through his subject. The descriptions of the different gynecological affections, with the directions and instructions for examining the same, are so lucid that it seems very easy, indeed, after reading the subject, to make your gynecological diagnoses.

This new edition is thoroughly revised, bringing the work fully up to date. New matter introduced is such as has proven valuable in the field of gynecology.

The x-ray and the Keating-Hart method of treating tumors are given due consideration.

In technic the author describes his own methods, or such as have given the best results in his own clinic. Yet he does not limit his teachings to these, but gives other well-known and successful procedures.

The illustrations are good, thirty-four new illustrations being added and forty-six original cuts removed.

As a student's text-book or as a reference book for the general practitioner, it is invaluable. On the whole, the work is very practical and covers the field of gynecology thoroughly.

—Sivertsen.

Diseases of the Heart and Aorta. By Arthur Douglass Hirschfelder, M. D., Associate in Medicine, Johns Hopkins University, with an Introductory Note by Lewellys F. Barker, M. D., LL. D., Professor of Medicine, Johns Hopkins University. Second Edition. Cloth. Price, $6.00. Pp. 738, with 344 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

Hirschfelder's book, already in its second edition, is one of the few books published in America which stand out eminently fit, timely, and satisfactory. The author's first-hand experience and "critical sifting," such as Dr. Barker mentions in his introduction, have given the book the tone of inclusiveness and earnestness, which will make it an authority for reference to the practitioner, and of extreme help to the teacher. The timeliness of the book is most obvious. To appreciate this, one has only to talk of the heart in the light of the new knowledge. Such an experience will convince one that the rank and file of practitioners are just ten years behind even the simplest of new terms and facts.

To those who wish to be abreast with the new and fascinating facts and literature on the heart the reviewer can most earnestly and sincerely recommend this successful attempt by Dr. Hirschfelder.

—Ulrich

Solidified Carbon-Dioxide. By Ralph Bernstein, M. D., Clinical Instructor in Skin Diseases, Hahnemann Medical College, Philadelphia, Pa. Frank S. Betz Co., Hammond, Ind.

A short, concise treatise on the treatment of various skin diseases with solidified carbon-dioxide, special attention being given those dermatoses in which this treatment outclasses other methods, namely angioma, lupus erythematosus, and epithelioma. Many will not agree with the author's enthusiasm for this treatment for epithelioma, although many successfully treated cases are listed.

After considering the subject in general as regards methods and effects of the snow, treatment of the various diseases is taken up briefly with a statement of the time and pressure to be used and the results to be expected.

The book is well illustrated.

—Irvine.

NEWS ITEMS

Dr. C. A. Lester, of Alexandria, will move to Winona.

Dr. S. Sprecher, of Tripp, S. D., is in Chicago doing research work.

Dr. G. E. Hoeper has moved from Litchfield to Grand Forks.

Dr. A. W. Eckstein, a recent graduate of Northwestern, has located at Clear Lake.

Dr. Alger W. French, formerly of Minneapolis, died last month at Palo Alto, Calif.

Dr. L. S. Moore, of Lead, S. D., is doing post-graduate work in Boston and New York.

Dr. Adolph A. Passer, of Olivia, was married last week to Miss Irene Monk, of Minneapolis.

Dr. George R. Fugina, who formerly practiced at Janesville, has located at Madison Lake.

A Minneapolis physician was fined $25.00 last week for failure to report a case of scarlet fever.

The Nurses' Training-School of the Warren Hospital graduated a class of seven nurses last month.

Dr. George W. Harrison, of Ashland, Wis., has been appointed commissioner of health for that city.

Dr. J. Clark Stewart, of Minneapolis, was married last week to Miss Isabelle Raiche, also of Minneapolis.

Dr. F. E. Best, a 1911 graduate of Northwestern, has become associated with Dr. P. F. Holm, of Wells.

Dr. S. E. Gilkey has moved from Minneapolis to Milan, where he will practice medicine and run a drug store.

Dr. Charles Ralph Drake, of Minneapolis, was married on June 5th to Miss Ruth C. McCall, also of Minneapolis.

Mankato has a visiting nurses' association of which Dr. C. C. Pratt is president. A visiting nurse will be employed at once.

Dr. I. H. Keisling has moved from Delano to Rockford to take up the practice of Dr. W. H. Hengstler, who will locate elsewhere.

The trustees of the North Dakota Tuberculosis Sanitarium will at once erect a number of cottage buildings for attendants and patients.

Dr. J. J. Reilly, of Milton, N. D., has entered upon his prison term of ten years for causing the death of a woman by an illegal operation.

Dr. E. P. Quain, of Bismarck, N. D., was taken seriously ill while doing research work in the East and was operated on in Cleveland last week.

Dr. T. C. Quigley, of Anamoose, N. D., has leased the Glen Ullin Hospital, and is now remodelling the building and will reopen the hospital soon.

Dr. William H. Still has located at White Rock, S. D. Dr. Still is a graduate of McGill, and has done extensive hospital and post-graduate work.

Dr. C. H. Keene, supervisor of hygiene in the St. Paul schools, will take up the work of Dr. Hoag in the University Extension work during the summer.

Dr. Harry A. Tomlinson, of Willmar, died on May 30th at the age of 57 years. Further notice of Dr. Tomlinson's life and labors appears in another column.

Dr. S. P. Bolstad, who recently sold his practice and went to Chicago to do post-graduate work, has received a government appointment in the Philippine service.

Dr. Earl E. Gage, who has practiced at Montrose, S. D., for about ten years, has gone to New York for post-graduate work, and upon his return he will locate in Sioux Falls.

An infant welfare exhibit was given in Duluth last month under the auspices of the Scottish Rite Masons. A number of Duluth physicians gave public lectures during the exhibit.

The Interurban Academy of Medicine met in Duluth on May 21st. Dr. J. A. Winder, of Duluth, and Dr. T. J. O'Leary, of Superior, Wis., read papers on the tonsils, and a general discussion followed.

The secretaries of the Minnesota County Societies are requested not to forget the banquet at 6:30 P. M., on the evening of Tuesday, June 17th, in the private blue dining-room of the Leamington Hotel, Tenth Street and Third Avenue South.

Dr. J. Frank Corbett, bacteriologist of the Minneapolis Department of Health, will soon resign, to become bacteriologist of the Medical Department of the University of Minnesota. Dr. Corbett will begin his University work August 1st.

Dr. P. M. Hall, former Commissioner of Health for Minneapolis, recommended, in a paper read before the State Homeopathic Institute, that milk be pasteurized on the farm and bottled with metal caps as beer is bottled by the brewers.

The South Dakota State Medical Association, at its annual meeting last month, voted to conduct a campaign of public health education. A state committee was created, and district committees will be formed at once to carry on a state-wide campaign.

Dr. Philip Mueller, of Minneapolis, was convicted of manslaughter, in December last, for causing the death of a woman upon whom he performed an abortion. The Minnesota Supreme Court has confirmed the verdict, and Dr. Mueller has gone to the penitentiary.

The six-weeks summer course instituted by the Department of Medicine of the University of Minnesota opens Tuesday, June 24. Two courses are offered: one for graduates in medicine, and one for undergraduates, making up deficiencies in the courses of study offered by the summer school. The fees charged vary with the courses taken.

At the annual meeting of the South Dakota State Medical Association, held at Vermilion on May 27-29, the following were elected officers for the current year: President, Dr. F. A. Spafford,

Flandreau; first vice-president, Dr. Fred Treon, Chamberlain; second vice-president, Dr. J. B. Vaughn, Castlewood; secretary-treasurer, Dr. R. D. Alway, Aberdeen. The official transactions of the meeting will appear in our next issue.

The Minnesota Homeopathic Institute held its annual meeting in St. Paul in May. The following officers were elected for the current year: President, Dr. A. L. Williams, Slayton; first vice-president, Dr. A. C. Aherns, St. Paul; second vice-president, Dr. Geo. R. Matchan, Minneapolis; secretary, Dr. Ethel E. Hurd, Minneapolis; treasurer, Dr. Margaret Koch, Minneapolis.

The Ladies Auxiliary of the South Dakota Medical Association elected the following officers at their annual meeting last month: President, Mrs. H. C. Kenney, Pierre; first vice-president, Mrs. H. W. Freeberg, Watertown; second vice-president, Mrs. F. W. Minty, Rapid City; third vice-president, Mrs. H. J. G. Koobs, Scotland; secretary-treasurer, Mrs. B. A. Bobb, Mitchell.

Dr. Jens Ohnstad, of McIntosh, died on May 25th at the age of 45 years. Death was the result of an auto accident. Dr. Ohnstad had been to Crookston with a large party, who were returning in nine cars, he being in the last car, which was driven by Dr. Sather, of Fosston. Dr. Sather was seriously injured. Dr. Ohnstad was a graduate of Minneapolis College of P. & S., class of '03.

The Minnesota Association for the Prevention and Relief of Tuberculosis, in five years of active work, has collected over $17,783, mostly in small amounts, and over three-fourths of it from the sale of Red Cross Seals. Most of this money was spent during that period; and the State Board of Health has expended $17,000 in a like work, but mostly for the tuberculosis exhibit. Results: a million and a quarter pieces of literature distributed; local exhibits and lectures in every town of 1,000 population; 30 local societies organized; intensive campaigns in 10 counties; 18 traveling and hospital nurses engaged; and, above and beyond all, an aroused public sentiment against the further tolerance of "the white-plague," backed by an appropriation from the late legislature of $500,000 to continue the work.

FOR SALE

An X-ray machine: Cost $1,000; will sell for $250. A safe: 26x30x36; cost about $125; will sell for $45. An apparatus for administering hot air; will sell for $8. An oak roll-top desk: large size, cost $65; will sell for $35. An operating-chair; will sell for $25.

These things were the property of the late Dr. T. M. McLean, of Fergus Falls, Minn., and must be sold at once. Address Mary H. M. McLean, Fergus Falls, Minn.

SUBSTITUTE WORK WANTED

Will substitute for some busy physician or surgeon for a few months in Minnesota or North or South Dakota. Am an all around good physician and surgeon with best of recommendations. Address C. O., care of this office.

PRACTICE WANTED

I desire to purchase a practice in Minnesota or North or South Dakota which must pay over $3,500. Will pay a fair price in cash for the same. Give full particulars. Address C. C., care of this office.

PHYSICIAN WANTED

Norwegian physician wanted. For particulars address Chas. N. Taber, Druggist, Reynolds, N. D.

INCUBATOR FOR SALE

One bacteriological incubator. Copper, asbestos covered, enameled water-jacket, with thermo-regulator and safety-lamp complete. Inside dimensions 9x9x12 inches, in good condition. Cost $45, used but little; good as new. Will sell for $20. Call upon or write Syndicate Bldg. Pharmacy, Minneapolis.

PHYSICIAN'S CHAIR FOR SALE

McDonald leather upholstered physician's chair (Truax, Greene & Co.) in first class order, like new, first check for $20.00 takes it. Address M. B., care of this office.

OFFICE FOR RENT IN MINNEAPOLIS

Physician's office space in new Syndicate Building, Nicollet Ave. frontage; three rooms; reception room together with dentist. Call T.-S., Center 5693.

PHYSICIANS WANTED—LOCUM TENENS

Locum tenens wanted to care for a prosperous village practice of $3,000 during June, July and possibly August. Must answer immediately and be ready to begin work June 1st. Address M. W., care of this office.

PRACTICE FOR SALE

I offer my practice and drug stock for sale. Location, central Minnesota, in rich farming country, thickly settled; Germans; good pay. Inland village, five miles from station; no other physician here. Nearest competition is ten miles north, twelve miles south and nine miles east with unlimited territory west. Have done $3,500 a year; am going to the city. Address, St. Martin's Drug Store, Zion P. O., Minn.

ASSISTANT WANTED AT ONCE.

A recent graduate with hospital experience as assistant in busy general and hospital practice. One who speaks Norwegian preferred. Salary with rapid opportunity for advancement. Address B. W., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF MARCH, 1913

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1	1														
Albert Lea	4,500	6,192	9	1		1		1								1		
Alexandria	2,681	3,001	5		1													
Anoka	3,769	3,972	3			1								1				
Austin	5,474	6,960	7	1					1							1		
Barnesville	1,326	1,353	3		1													
Bemidji	2,183	5,099	14			3										1		1
Benson	1,525	1,677	3													1		1
Blue Earth	2,900	2,319	0															
Brainerd	7,524	8,526	10			2												1
Breckenridge	1,282	1,840	1												1			
Canby	1,100	1,528	1	1														
Cannon Falls	1,239	1,385	2			1												
Chaska	2,165	2,050	3	1		1												
Chatfield	1,426	1,226	2													1		
Cloquet	3,074	7,031	6	1														1
Crookston	**5,359**	7,559	6											1				1
Dawson	**962**	1,318	0															
Detroit	2,060	2,807	8	1												1		1
Duluth	52,968	78,466	88	5	2	22	1	1	1					1	2	4	2	3
East Grand Forks	2,077	2,533	3															
Ely	3,572	3,572	5			2												
Eveleth	2,752	7,036	8			3									1			
Fairmont	3,440	2,958	2													2		
Faribault	7,868	9,001	11	3	1	2										4		
Fergus Falls	6,072	6,887	8								2			1				1
Glencoe	1,788	1,788	1															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	3			1												1
Hutchinson	2,495	2,368	3	1														
International Falls		1,487	7	1		1												1
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	3	1														1
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	8			2										1		
Luverne	2,223	2,540	0															
Madison	1,336	1,811	4			1												
Mankato	10,559	10,365	16	1		2			1							2		
Marshall	2,088	2,152	7													1		
Melrose	2,591	2,591	4			1			1						1			
Minneapolis	202,718	301,408	393	36	8	45	8	6	11		3		1	3	14	17	2	16
Montevideo	2,146	3,056	6			1					1			1				
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	4	2														
Morris	1,934	1,685	1	1														
New Prague	1,228	1,554	1															
New Ulm	5,403	5,648	6		1	1												
Northfield	3,210	3,215	6															
Ortonville	1,247	1,774	2															
Owatonna	5,561	5,658	10	2		3									1			1
Pipestone	2,536	2,475	3						2									
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	10	1		2									1			
Redwood Falls	1,661	1,666	2															
Renville	1,075	1,182	1			1												
Rochester	6,843	7,844	27	1	2	1						1				9		
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	2													1		
St. Cloud	8,663	10,600	11	1		7												
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	217	25	9	28	9	1	8		3			2	3	15		10
St. Peter	4,302	4,176	2					1										
Sauk Centre	2,154	2,154	2															
Shakopee	2,046	2,302	6													1		
Sleepy Eye	2,046	2,247	3															
South St. Paul	2,322	4,510	5	1		1									1	1		
Staples	1,504	2,558	2		1													1
Stillwater	12,318	10,198	7			1										1		1
Thief River Falls	1,819	3,174	6												2	1		
Tower	1,111	1,111	0															
Tracy	1,911	1,826	2													1		
Two Harbors	3,278	4,990	3	1							1							
Virginia	2,962	10,473	10	2		3									1			1
Wabasha	2,622	2,622	4			1												
Warren	1,276	1,613	3			1												
Waseca	3,103	3,054	5	2		1										1		
Waterville	1,260	1,273	3	1	1													1
West St. Paul	1,830	2,660	3						1							1		
Willmar	3,409	4,135	6	1	1													
Winona	19,714	18,583	33	3		4									1	1		
Winthrop	813	1,043	1															
Worthington	2,386	2,385	10		1	1			2									

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	2	1														
Aitkin	1,719	1,638	1															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	0															
Biwabik		2,690	2			1												
Bovey		1,377	1															
Browns Valley	721	1,058	3			1												
Buffalo	1,040	1,227	4													1		
Caledonia	1,175	1,372	1															
Cass Lake	546	2,011	0															
Chisholm		7,684	19			5		10										2
Coleraine		1,613	0															
Delano	967	1,031	0															
Farmington	733	1,024	2															
Fosston	864	1,055	*															
Frazee	1,000	1,645	5															2
Glenwood	1,116	2,161	0															
Grand Rapids	1,428	2,239	4	1		1			1									
Hibbing	2,481	8,832	10			2									1			2
Jackson	1,756	1,907	3	1		1												
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	0															
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	5													2		
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	*															
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	2					1										
Nashwauk		2,080	0															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	4	1		1												
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	2															
Pine City	993	1,258	0															
Plainview	1,038	1,175	3			1												
Preston	1,278	1,193	0															
Princeton	1,319	1,555	5	1	1													
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	*															
Sauk Rapids	1,391	1,745	1													1		
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	2															
Wadena	1,520	1,820	0															
Wells	2,017	1,755	*															
West Minneapolis	2,250	3,022	5	1				1							1			
Wheaton	1,132	1,300	3													1		
White Bear Lake	1,288	1,505	1															1
Windom	1,944	1,749	3					1										
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	2													1		
STATE INSTITUTIONS																		
Anoka, Asylum			2	1												1		
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			4		1	1												
Fergus Falls, Hospital for Insane			18	5	1	2										1	1	
Hastings, Asylum			4	2												1		
Minneapolis, Soldiers' Home			6													3		1
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			10	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			13	3	1													1
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			937	74	8	127	5	8	12		18	1		4	26	45	7	36
Total for state			2211	191	41	291	23	31	41	0	28	2	1	14	57	127	12	89

*No report received. Registrar not doing his duty.

145 stillbirths not included in above totals.

Children Better Without Coffee

In childhood the emotional nature is peculiarly susceptible to stimuli, mental and material.

The young, expanding mind of the normal child is ever open to Life's mysteries, and the aim of parent, teacher and family physician should be to promote and maintain a healthy balance between physical and mental development.

Coffee, on account of its alkaloid, caffeine, stimulates the emotional and imaginative faculties, and, in children, is little less than a **menace** to normal well-being and the highest development.

Experience and comparison of effects in many instances have demonstrated that children of excitable, unstable nervous system while habitually allowed coffee at regular intervals, have gained stability and poise of nervous activity when put upon

INSTANT POSTUM

Postum not only replaces the alkaloid-bearing coffee as a beverage, but restores conditions more nearly normal, and hence greatly desirable for the growing child.

Postum now comes in two forms.

Regular Postum (must be boiled).

Instant Postum doesn't require boiling, but is prepared **instantly** by stirring a level teaspoonful in an ordinary cup of hot water.

A level teaspoonful makes it right for most persons. A big cup requires more, and some people put in a heaping spoonful, temper it with a large supply of cream, and it has a snap and go which pleases some palates.

Experiment until you know the amount that pleases your taste and have it served that way.

The *Clinical Record,* for Physician's bedside use, together with samples of **Instant Postum, Grape-Nuts** and **Post Toasties** for personal and clinical examination, will be sent on request to any Physician who has not yet received them.

POSTUM CEREAL CO., Ltd., BATTLE CREEK, MICH., U. S. A.

PUBLISHER'S DEPARTMENT

FISHING AND OUTING

The Northwestern Line has just issued its annual fishing and outing folder, and we venture to say, speaking from many years' experience, that no other line of railway radiating from the Twin Cities reaches so many delightful resorts as the Northwestern.

Northern Wisconsin is literally full of the outer's delights, such as no other Northwestern state furnishes. Here are spring lakes of crystal clearness, furnishing the best of bass, muskellunge, and pike fishing; and many of these lakes are near excellent trout streams.

Many of these lakes are in a state of wildness, but upon most of them will be found a cabin or two with excellent accommodations at very low rates. Others have modern hotels on their shores, furnishing accommodations for those who wish to take their families and have all the comforts of city life.

Our readers will find the folder of great interest, and to anyone looking for almost any kind of summer resort it will give accurate and reliable information. Copies may be had of any Northwestern representative.

A CORDIAL SANITARIUM INVITATION

The Battle Creek Sanitarium has extended a generous invitation to all A. M. A. members to visit the institution's $2,000,000 plant as the guests of the Sanitarium.

Battle Creek is a great institution, and no physician can go there without gaining a great deal of valuable information, either from its medical or its personal side. Its success must be built upon something of real value; and even if this something be not new, it must be interesting to all medical men.

PREVENTION OF POST-OPERATIVE GAS PAINS

G. W. Crile, of Cleveland, in Keen's "Surgery," vol. vi, p. 158, which has just been issued, gives this technic for his anoci-association: "The patient is anesthetized as usual, but the entire line of incisions is carefully blocked with novocain, including the peritoneum. If then, at the end of the operation and before the peritoneum is closed, there is applied around the entire line of stitches a complete anesthetic block that will last a number of days, such as fifty per cent alcohol or quinin and urea hydrochlorate, and if in stitching the peritoneum every stitch is placed within this blocked zone, then afferent impulses caused by stitch-irritation are blocked, and hence cannot excite this protective mechanism of intestinal inhibition.

"On trial of this method it was found that such blocking does minimize or even prevent post-operative gas pains in all sorts of abdominal operations. The principle here enunciated has been more or less tested in a series of over 2,000 by myself. In the last 1,000 the death-rate has fallen to 1.8 per cent."

THE SACRED HEART SANITARIUM

We desire to call attention again to the above institution, situated on St. Mary's Hill, Milwaukee. While devoted largely to nervous, mental, and drug cases, all non-contagious medical cases are received.

This Sanitarium's special appeal is in its beautiful location and surroundings; its homelike atmosphere; its generous attention to every patient, because of its large corps of attendants whose work is a work of love; its able staff; and, often most important, its very low rates.

For booklet and further information, address Dr. S. S. Stack, Superintendent, Milwaukee, Wis.

THE FIRELESS COOKER

The fireless cooker came onto the market several years ago in a form so defective as to make its real value only too little known. The "hay box" was crude; a later form with plush pads was offensive; even the neat wooden box lined with tin soon warped or rusted out; but finally a really "perfect" cooker was developed. A steel casing with the best known fiber insulation and heavy aluminum lining and aluminum utensils, defies the effects of dampness, heat, and rust. It is well-nigh indestructible, and its insulation conserves the heat so thoroughly as to add greatly to economy of fuel and perfection of result in cooking.

A dietary kitchen in a hospital, or indeed a kitchen in any well-regulated home, without a double-boiler would be an anomaly; and yet the double boiler is a crude affair by the side of a perfect fireless cooker. It cannot cook a single article of food so well, nor can it cook one-tenth the articles at all that a fireless cooker can cook perfectly and with little or no attention.

Dr. Wiley says: "There is no investment man can make that will bring him as great returns as a fireless cooker."

Such a cooker makes both healthful and palatable many foods that are indigestible and unpalatable if cooked in any other way. It saves much labor in the kitchen, and often frees the maid or housewife from hours of care. It makes some of the cheaper cuts of meat almost equal to the high-priced ones, and it renders some of the cereals so delicious as to make them an important part of the dietary of both young and old people who will not eat them at all when poorly and insufficiently cooked. And it pays for itself in a very short time by its saving in actual outlay for fuel. Its economy of wear and tear on the housekeeper pays for itself every week it is in use.

But all the above is true only when one has a *perfect* cooker, and that one is "The Perfect Fireless Cooker," made by the Household Equipment Company, of Minneapolis. See their announcement on another page.

THE
JOURNAL-LANCET

The Journal of the Minnesota State Medical Association
and Official Organ of the
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXIII | MINNEAPOLIS, JULY 1, 1913 | No. 13

TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

TWENTY-SIXTH ANNUAL MEETING

1913

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PRESIDENT

MURDOCK MacGREGOR, M. D.....Fargo

FIRST VICE-PRESIDENT

R. HUDSON BEEK, M. D.....Lakota

SECOND VICE-PRESIDENT

VICTOR H. STICKNEY, M. D.....Dickinson

THIRD VICE-PRESIDENT

ANDREW CARR, M. D.....Minot

SECRETARY

H. J. ROWE, M. D.....Casselton

TREASURER

C. S. CRANE, M. D.....Grand Forks

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COUNCILOR—DEVILS LAKE SOCIETY

G. F. DREW, M. D.....Devils Lake

COUNCILOR—GRAND FORKS SOCIETY

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COUNCILOR—NORTHWESTERN SOCIETY

J. T. NEWLOVE, M. D.....Minot

COUNCILOR—SHEYENNE VALLEY SOCIETY

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COUNCILOR—SIXTH DISTRICT SOCIETY

F. R. SMYTH, M. D.....Bismarck

COUNCILOR—STUTSMAN COUNTY SOCIETY

GUSTAVE GOLSETH, M. D.....Jamestown

COUNCILOR—SOUTHERN DISTRICT AND RICHLAND COUNTY SOCIETY

L. B. GREEN, M. D.....Monango

COUNCILOR—TRI-COUNTY SOCIETY

CHARLES McLACHLIN, M. D.....New Rockford

COUNCILOR—TRAILL COUNTY SOCIETY

J. E. COUNTRYMAN, M. D.....Grafton

MEMBER OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

JAMES GRASSICK, M. D.....Grand Forks

ALTERNATE

BLAKE LANCASTER, M. D.....Crosby

Proceedings of the House of Delegates

FIRST SESSION—MONDAY, MAY 2ND

The House of Delegates met at 8 P. M. on May 6, 1913, in the Library Bldg., Minot. There were present, in addition to the President and Secretary, Councilor J. T. Newlove, elected to fill the vacancy in the Northwestern District Medical Society, and Delegates Meigs, Maercklein, MacGregor, Beek, Ray, Nicholson, Healy and Countryman.

The minutes of the previous annual session were read and approved, and also the minutes of a *pro re natâ* meeting held at Devils Lake, November 5, 1912, called by President McCannel for the purpose of discussing measures relative to health and sanitary measures. The papers presented at the above-named meeting were "Our Medical Practice Act," by Dr. G. M. Williamson; "The Licensing of Irregulars," by Dr. Murdock MacGregor; "Enforcing the Law against Unlicensed Practitioners," by Dr. E. P. Quain; "The Druggist Permit Law," by Dr. R. H. Beek. These papers were discussed at length and the following action taken: That no new law or amendments to the Medical Practice Act would be asked for, since some parts of the law had not been tested in the courts. It was voted that the Legislative Committee use such means as they deemed necessary to educate the children in the public schools in public health matters.

It was further resolved that, as alcoholic liquors are but seldom required in the treatment of

the sick, and as it is beneath the dignity of the medical profession to prescribe or dispense alcoholic liquors as a beverage, the members of the North Dakota Medical Association do all in their power to prevent any legislation which shall throw the responsibility of the liquor traffic into their hands.

A letter from the "Trained Nurses' Association" reciting their effort to raise the standard of nurses in the state, and expressing the hope that at some future time a law would be enacted requiring the nurses of North Dakota to have equal training and skill with those of other states, was commended, and a motion prevailed that when the nurses presented such a bill it should receive the endorsement of the profession of this state.

Dr. G. F. Ruediger presented, in the absence of Dr. James Grassick, the paper on "Health Laws," and referred to the faulty condition and the impossibility of carrying on the work satisfactorily under existing laws of the state. He was delegated to wait upon the governor in person and present to him the great need of a change in the laws governing the present Board of Health and suggest such changes as would benefit the department.

The usual order of business, as used in previous meetings, was adopted for the present meeting.

The Secretary read his report, as follows:

REPORT OF THE SECRETARY

To the President and Members of the House of Delegates:

In conformity with the action taken by the House of Delegates at the 1912 meeting, that the dates for the 1913 meeting should not conflict with those of South Dakota and Montana, the secretaries of both states were consulted. As the Montana Association meets the second week in May and the South Dakota Association the third week in June, the date of our annual meeting was accordingly placed in the first week in June.

As per instructions from the House of Delegates, the American Medical Association was requested to send five copies of the Owen bill to each of the Councilors, Delegates, and local secretaries. The Secretary of the A. M. A. promptly informed me that the request had been complied with.

The action taken in reference to the Owen bill, with a copy of the resolutions adopted by the State Medical Association, was sent each of the Congressmen and United States Senators of this state, with a request that they support the measure, and acknowledgments were received from each that the bill would be given proper consideration when it came up for final action.

A thousand copies of the Medical Defense proposition adopted by the State Association were printed and sent in quantities to the several local secretaries, with a request that they be distributed and made a means of inducing non-members to become active members of the State Medical Association.

Unfortunately, the advice was not heeded, and, in some instances, I have personal knowledge that these leaflets were not distributed until April of this year, thereby losing an opportunity of increasing the membership with this strong arm of protection as an incentive for joining one's local society.

A fire, which destroyed my office and records on October 26, 1912, deprived me of all supplies and records of the State Medical Association. Fortunately, the proceedings of the last annual meeting were being printed at the time and left me a nucleus upon which to resume my work. New supplies were ordered and through the courtesy of the American Medical Association, which was prompt in supplying the needed material, the business of the Association was carried on with little interference, but was attended with some inconvenience and much additional labor.

I attended a conference of state secretaries held at the headquarters of the American Medical Association in Chicago on Wednesday, October 23, 1912. The committee on Uniform Regulation of Membership recommended such a conference, and it was approved by the House of Delegates of the American Medical Association and authorized by the Board of Trustees, all expenses of the secretaries in attendance being paid by the A. M. A. The conference adopted the following recommendations, to-wit:

1. That this Conference endorses the plan of having the fiscal year coincide with the calendar year in all parts of the organization. We further recommend that secretaries of all State Associations which have not already adopted this provision bring this matter to the attention of their Associations and recommend its adoption.

2. We recommend that constituent State Associations adopt provisions making dues in county societies payable on January 1st of each year, and requiring county secretaries to report to state secretaries all members in good standing, together with the per capita assessment for the current year, not later than January 31st. State Associations desiring to do so may provide a shorter period.

The question of fees for admission to membership and the prorating of dues was left optional with each local society.

The value of the Conference to the State Association secretaries, and to the purposes of organization, was recognized as of sufficient importance to warrant future conferences of like character.

The annual reports were so slow in coming in that it is impossible at this time to know whether we shall have fewer members this year than last. There are always quite a few that are reported before the transactions can be printed, and this may raise us above the number reported last year.

If we approve the recommendations adopted at the Conference of the State Secretaries and have the fiscal year end with the calendar year, giving a reasonable time for delinquencies, it will obviate the necessity of holding the annual report until we meet in annual meeting to complete it.

It was impossible this year to send out programs in many cases because of the local societies being late with their reports, so that all that was done was to take the

names from last year's roster, depriving some who should have had programs because their names had not been received in time to reach them before going to the annual meeting.

The system of cards adopted for the use of secretaries and which are provided gratuitously for reporting any change in membership or removals, if filled out at the time a change occurs and forwarded to the state secretary, would obviate much of this trouble, and their names could be reported promptly to the A. M. A.

If Councilors did what is expected of them and for which provision has been made to pay their expenses and a per diem when occupied in visiting their several societies, they could materially assist in making the work more uniform and be of great assistance to local societies in keeping up an interest and helping to bring in those who are disposed to remain outside and are rather a hindrance to uniformity of action on any line that is suggested for the upbuilding of the profession. If Councilors do not feel disposed to make these visitations and report the same to the House of Delegates annually, as the constitution plainly requires, then some one who can do this should be delegated to attend to that duty, and it would be an expenditure that would result in much good and increase the membership of the State Association.

	1912. Membership	1913. Membership
Cass County District Medical Society	45	38
Devils Lake District Medical Society	12	21
Grand Forks District Medical Society	65	65
Hettinger County Medical Society	6	..
Northwestern District Medical Society	60	69
Richland County Medical Society	9	12
Sheyenne Valley District Medical Society	16	16
Sixth District Medical Society	33	36
Southwestern District Medical Society	9	11
Southern District Medical Society	17	15
Stark County Medical Society	16	13
Stutsman County Medical Society	16	14
Traill-Steele District Medical Society	11	10
Tri-County Medical Society	14	17
Totals	329	337

Respectfully submitted,

H. J. Rowe, Secretary.

A proposition from the *St. Paul Medical Journal* to print our proceedings, was read.

It was moved and carried that the fiscal year coincide with the calendar year, which was in conformity with the action of the Conferences of the State Secretaries held in Chicago on October 23, 1912.

A committee, consisting of Drs. MacGregor, Ray, and Meigs, was appointed to consider and report on the second proposition, which related to the time when local secretaries should make their annual reports to the state secretary. The committee's report, made and adopted, was that the time for local secretaries to make their annual reports should expire February 15th and that all members who were delinquent in their dues should be dropped on February 1.

Adjourned to meet at the call of the President.

SECOND SESSION—TUESDAY, MAY 6TH

The House of Delegates convened as per adjournment at the call of the President. There were present Drs. MacGregor, Beek, Pray, Golseth, J. T. Newlove, Meigs, Maercklein, Ray, Nicholson, Healy, and Countryman.

The minutes of previous session read and approved.

The question of renewing the contract with The Journal-Lancet of Minneapolis, or making a contract with the *St. Paul Medical Journal* was taken up and discussed. After a general discussion the preference was to negotiate with The Journal-Lancet.

The committee on officers' addresses reported, recommending that the recommendations one, two, three, four, five, and six in the President's address be approved. The report was adopted.

REPORT OF THE DELEGATE TO THE AMERICAN

Dr. V. H. Stickney, delegate to the A. M. A., made the following report:

REPORT OF DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION MEETING, 1912

To the House of Delegates of the North Dakota State Medical Association:

As your representative in the House of Delegates of the American Medical Association, I beg leave to make the following report:

The House of Delegates of the American Medical Association met at Atlantic City, N. J., on June 3, 1912. The meeting was called to order by the President, Dr. J. B. Murphy of Chicago. In his address to the House of Delegates Dr. Murphy emphasized the importance of continuing the fight against those unscrupulous individuals who, for the past few years, have persisted in their venomous attacks upon the medical profession of the country in the interests of those who, for profit or other personal benefit, have been preying on the public through the sale of patent medicines and adulterated foods and drugs.

He congratulated the management of the *Journal of the American Medical Association* on the attitude it had taken in forcing this class of its opponents into the open and declared that we should no longer meet their accusations with dignified silence, but should, rather, combat their attacks with that forceful militancy which it richly deserves, to the end that the medical profession be placed in its actual and true light before the public.

On June 4th Dr. Abraham Jacobi, of New York, the new President of the Association, assumed the duties of his office in the House of Delegates.

The Secretary's report showed the following condition as to membership: The total membership of the American Medical Association at the beginning of the year 1912 was 34,282. In North Dakota, out of 594

practicing physicians in the state, 388 were members of the State Association.

From the report of the Trustees and the Treasurer we find the financial condition of the Association to be as follows: Assets, $511,759; liabilities, $9,414, leaving a surplus of $502,344.

Some of the more important transactions in the House of Delegates during the 1912 sessions were the adoption of the new Principles of Ethics; the adoption of the committee's report on reapportionment for representation in the House of Delegates; the adoption of the committee's report on uniform regulation of membership; the election of Dr. John A. Witherspoon, of Nashville, Tenn., as President of the American Medical Association, for 1913, and the selection of Minneapolis, Minn., as the meeting place for the next annual meeting.

Respectfully submitted,

V. H. Stickney.

The report was accepted with the thanks of the Association to Dr. Stickney for his faithful performance of duty.

A committee of three members and the Secretary, consisting of Drs. Bodenstab, Healy, and Pray, was appointed to negotiate with The Journal-Lancet with full power to act and arrange for the publication of our proceedings and papers, and the price at which the publication should be furnished the members of the Association, and, if they deemed it wise, to have a reprint of the transactions in bound form, if not too expensive.

Drs. Healy, Pray, and Nicholson were appointed a committee on nominations.

Adjourned.

THIRD SESSION—WEDNESDAY, MAY 7TH

The House of Delegates convened as per adjournment, and was called to order by the President. There were present, Drs. Beek, Golseth, MacLachlan, Maercklein, Meigs, Ray, Healy, Countryman, and Smyth.

The minutes of the previous session were read and approved.

The Committee on Tuberculosis reported as follows:

REPORT OF THE COMMITTEE ON TUBERCULOSIS

To the House of Delegates of the North Dakota State Medical Association:

Since we were endorsed by your Association some years ago and acknowledged to be an active factor in public-health work it has been our custom to make a report at your annual meetings and to give in detail a résumé of our activities. We take the liberty at this time of again presenting our case.

During the past year we have been more aggressive than ever. We have endeavored to plant the flags of Progress, Education, and Good Health well within the lines of the enemy. Our lecturers and demonstrators have held meetings in eighty-six different places and on one hundred and eight different occasions. The combined audiences have numbered over fifteen thousand, and at each of these meetings anti-tuberculosis literature was distributed. To reach these appointments over five thousand miles were traveled. In addition to this we conducted a Tuberculosis Sunday Campaign and succeeded in interesting over three hundred gospel ministers in the cause. A special day was set apart for public-health work, and the pulpits gave one or more services to a discussion of this important subject.

In addition to educational work we did something in the way of legislation. We had three bills introduced at the last meeting of the legislature at Bismarck.

1. S. B. No. 256. Gronvold. Requiring persons to disinfect second-hand furniture, bedding, clothing, etc., before offering the same for sale.

2. H. B. No. 155. Bartley. Permitting counties to appropriate money to prevent the spread of tuberculosis in the state by employing visiting nurses, etc.

3. S. B. No. 315. Bowzer. Providing for the labeling of meat from animals affected with contagious or infectious diseases, and prescribing penalties for violation thereof.

We are pleased to report that all of these bills became law, and that we regard them as examples of progressive public-health legislation. Other health measures, such as the public drinking-cup bill, had our endorsement and support.

Part of our purpose as an association is, according to our constituion "to assist as far as possible in the construction of sufficient sanitoria for the use in this contest." It has been the privilege of the President to serve as a member of the committee for the selection of a site, also as a mmber of the Board of Trustees for the sanitarium. Our action in the former capacity was reported two years ago. The latter proposition was one that called for more time and attention. The problems that faced us were to evolve from the rough the best equipment possible, in design and finish, consistent with a due regard for the practical and for the amount of money at our disposal. How well we succeeded is a matter for judges to say. We are not vain enough to believe that we have succeeded in avoiding all errors. But we do believe that we have in the finished product a result that will appeal favorably to every unprejudiced person. There is not to our knowledge a shoddy part in the whole concern. It was found when the buildings were completed and ready for occupancy that the equipment was deficient on account of lack of funds. Our Association came to the rescue and furnished the institution with five hundred and twenty dollars' worth of blankets, thus making it possible to care for patients during the winter months. Friends of the work everywhere will be pleased to know that a right start has been made. It is the people's institution. It is theirs to use, and I have every confidence that its future will be amply provided for. It will in my opinion be a center from which will radiate the light of truth on matters pertaining to good health and right living, and at the same time be a haven of rest and recuperation for those who are in need of modern methods of treatment.

We realize that this is not the work for any one per-

son or organization, but for the combined action of all individuals and agencies that have to do with the moral, social, and economic uplift of our people. This is the age of organization and co-operation, and we are of the opinion that your Association should be directly connected with this movement and have a share in its activities. It is a matter worthy of commendation that individual members of the medical profession can very generally be relied upon to help in any movement for the betterment of humanity. With your moral and material support as an organization, the Cause of the Anti-tuberculosis Movement in North Dakota, would, I believe, receive such an impetus as would place it in the front rank of similar movements in the United States.

Respectfully submitted,

J. Grassick, M. D., Grand Forks, President.

Fannie Dunn Quain, M. D., Bismarck, Secretary.

REPORT OF THE TREASURER

Receipts

Balance on hand May, 1912	$1,016.06
Richland County, May, 1912	5.00
Sixth District, May 25, 1912	5.00
Northwestern District, May 25, 1912	285.00
Southern District, July 25, 1912	3.00
Southern District, July 25, 1912	7.00
Stark County, Sept. 10, 1912	5.00
Northwestern District, Sept. 10, 1912	15.00
Southern District, Oct. 23, 1912	10.00
Traill-Steele, Oct. 30, 1912	15.00
Tri-County, Oct. 30, 1912	10.00
Devils Lake, Jan. 21, 1913	35.00
Devils Lake, Jan. 25, 1913	5.00
Devils Lake, Jan 25, 1913	10.00
Devils Lake, Feb. 1, 1913	5.00
Richland county, Feb. 8, 1913	45.00
Devils Lake, Feb. 10, 1913	15.00
Devils Lake, Mar. 3, 1913	10.00
Richland County, Mar. 13, 1913	10.00
Tri-County, Mar. 24, 1913	65.00
Sheyenne Valley, Apr. 2, 1913	75.00
South-Western, Apr. 2, 1913	55.00
Stutsman County, Apr. 16, 1913	70.00
Southern District, Apr. 16, 1913	65.00
Devils Lake, Apr. 23, 1913	20.00
Northwestern District, Apr. 23, 1913	290.00
	$2,151.06

Disbursements

H. J. Rowe, Secretary, postage and express	$15.00
Whitehead & Hoag Co., 245 N. D. Med. Assn. buttons	27.06
Geo. M. Williamson, Secretary, ordered by House of Delegates	25.00
Jas. Grassick, T. B. association	100.00
Journal-Lancet, payment in full to June 1, 1912	169.00
A. J. Long, transcripts of proceedings 1912	97.00
Bosard & Twiford, one-half salary medical-defense	150.00
H. J. Rowe, Secretary, part salary	100.00
Casselton Reporter, printing supplies	3.75
Casselton Reporter, one thousand medical defense	5.00
American Medical Assn., blanks and supplies	6.75
Bosard & Twiford, legal services for defense	150.00
Casselton Reporter, official paper and envelopes	8.00
H. J. Rowe, salary and postage	125.00
The Minot Printing Co., circular letters, envelopes, etc.	8.50
American Medical Association, 500 164-page 1912 Journals	221.40
Casselton Reporter, 500 fee bills—order books on treasurer	7.50
J. R. McIntyre, P. M., 500 1-cent stamped envelopes	5.78
Total	$1,224.74
Cash on hand April 29, 1913	926.32
	$2,151.06

The Auditing Committee made the following report, which was adopted:

REPORT OF AUDITING COMMITTEE

Your committee have checked the accounts of the Secretary and Treasurer and find that the report as made by the First National bank of St. Thomas is correct and that there was on hand April 29, 1913.. $926.32

The Secretary has in addition these amounts:

Grand Forks District Medical Society	325.00
Cass County District Medical Society	200.00
Sixth District Medical Society	180.00
Stark County Medical Society	65.00
Traill-Steele District Medical Society	45.00
Southern District Medical Society	5.00
Richland County Medical Society	5.00
Sheyenne Valley District Medical Society	.
Leaving the balance on hand	$1,756.32

The report was adopted and ordered to be printed in the transactions.

The Committee on Nominations made the following report, which was adopted:

President, Murdock MacGregor.

First vice-president, R. H. Beek.

Second vice-president, Victor Hugo Stickney.

Third vice-president, Andrew Carr.

Secretary, H. J. Rowe.

Treasurer, C. S. Crane.

Councilors: L. B. Green, G. F. Drew, and J. E. Countryman for a term of three years; and J. T. Newlove for two years to fill a vacancy.

Delegate to the American Medical Association, Jas. Grassick.

Alternate, Blake Lancaster.

Members recommended to the governor for reappointment on the State Medical Examining Board: Drs. A. W. Skelsey, G. M. Williamson, and Francis Peak.

REPORT OF COMMITTEE ON NECROLOGY

Your committee regrets having to report that death has demanded a heavy toll of our members during the past year. Three physicians in active practice, zealous in their work, and with well-earned reputations that had gained them the confidence and respect of their fellow practitioners, as well as of the members of the communities in which they labored, were cut off in the fullness of their professional life.

Dr. John D. Taylor

Dr. John D. Taylor graduated from Jefferson Medical College, Philadelphia, in 1891, and soon after located in Stephen, Minnesota, where he practiced his profession until about ten years ago, when he moved to Minot, in this state. Dr. Taylor was an active member of the State Association and for many years held the position of treasurer. Skilful and careful in his professional duties, he was equally attentive to details as treasurer and kept the accounts of the Association in the most methodical manner.

At the time of his death the doctor was Councilor for the Northwestern District and was active in main-

taining the proud distinction that district has, of having the largest membership in the state. Always willing to help and encourage younger members, his advice was eagerly welcomed by his colleagues, and his presence at annual meetings was an inspiration for good.

The doctor died at St. Luke's Hospital, St. Paul, on October 9, 1912, aged 56 years.

DR. HAROLD B. BLANCHARD

Dr. Harold B. Blanchard was born at Athens, Ontario, Canada, in May, 1883, and died at Columbus, North Dakota, after a few days' illness, from scarlet fever, on February 19, 1913.

Dr. Blanchard was a graduate of McGill College, Canada, 1907. Although a comparatively new settler in the state, the doctor had a wide acquaintance and was regarded by all as a worthy citizen and skilful and conscientious physician.

He was a member of the Northwestern District Medical Society and of the State Medical Association.

DR. FRANK JAMES KING

Dr. Frank James King was born near Uxbridge, Ontario, Canada, on August 10, 1864.

In 1890 he came to the United States and graduated from the Starling Medical College, Ohio, in 1894. After practicing in Ohio for two years he moved to North Dakota, where he continued in active practice until the time of his death.

The doctor was held in great respect, not only by his fellow practitioners, but by all classes of citizens with whom he came in contact.

He was an ardent supporter of efforts to raise the scientific standard of medicine and to make physicians efficient guardians of the public health. He had held the honorable office of President of the Grand Forks Local Medical Society and at the time of his death was treasurer of the State Medical Association, which position of trust he had held for three consecutive terms.

Dr. King, who was located at St. Thomas, died at Rochester, Minnesota, on April 29, 1913, of cancer.

F. R. SMYTH, Chairman.

A motion prevailed that we endorse the effort of the United States Government in making a study of the medicinal springs of this country.

The following amendment to Chapter 12 of the By-Laws, laid over from yesterday, was taken up and adopted:

AMENDMENT TO CHAPTER 12 OF THE BY-LAWS

Chapter 12 of the By-Laws is hereby amended to read as follows, by adding Section 7.

Section 7. It is further provided that in the event that any member shall become delinquent in his dues and be dropped from membership pursuant to the By-Laws, and shall subsequently, upon reinstatement, apply to the Association or the Committee on Medical Defense, for the investigation or defense of a threatened suit or a suit commenced for malpractice, his rights to such defense against all claims shall date and commence from the date of his reinstatement, and not from the date of his original membership; and no claim made against him for any act occurring at any time prior to his reinstatement, shall be defended or investigated by the Association or the Committee on Medical Defense, except that the claim may be investigated to determine the time which it is claimed the act or omission claimed or sued for occurred.

This section to take effect from and after its adoption.

The following resolution submitted by Dr. F. R. Smyth, was adopted:

Whereas, Accurate vital statistics are essential to the effective and successful administration of a public health department, and wherever such statistics are wanting, sanitary administration is defective; and as it has been amply demonstrated that applied vital statistics tend to improve the public health, encourage sanitary reforms and diminish the death-rate, therefore,

Be it resolved, That we, as members of the Sixth District Medical Society, respectfully request Governor Hanna that he require the State Board of Health to establish the Bureau of Vital Statistics at the state capitol, as provided for in Chapter 270, Sessiol Laws of 1907; and that the Secretary of the State Board of Health, as state registrar, be required to maintain an office there and file and preserve all statistics received from local registrars, that there may be a permanent record of all births and deaths in the state.

It was decided that the next meeting should be held in Grand Forks (1914).

Adjourned.

FOURTH SESSION—WEDNESDAY AFTERNOON, MAY 7TH

The House of Delegates convened at the call of the President, with the same Delegates present as at the morning session.

REPORT OF THE COMMITTEE ON MEDICAL DEFENSE

The committee begs leave to report as follows: Since our plan of medical defense went into effect, January 1, 1912, only one suit has been brought before the Committee on Medical Defense. This suit should have come to trial at the last term of district court, and our attorneys were ready to go into court with it, but at the request of the plaintiff it was put over the term and will probably never come to trial.

In addition to this suit, actions have been brought against four other doctors in the state, mostly nonmembers of the Association. In two cases the doctors had been members, but were delinquent at the time the suits were begun.

The expense to the Association to date is simply the retainer fee paid our attorneys, no other expenses of any kind having been incurred.

Respectfully submitted,

A. J. MCCANNEL, Chairman.

Dr. E. P. Quain was elected a member of the Medical Defense Committee for a term of five years.

Adjourned.

H. J. ROWE, M. D., Secretary.

COUNTY AND DISTRICT ROSTER

CASS COUNTY MEDICAL SOCIETY

PRESIDENT

Skelsey, A. W. ..... Fargo

SECRETARY

Nichols, Wm. C. ..... Fargo

Alexander, J. C. ..... Tower City
Aylen, J. P. ..... Fargo
Bailey, Fred H. ..... Fargo
Baillie, W. F. ..... Hunter
Baldwin, W. P. ..... Casselton
Bennett, C. E. ..... Aneta
Brown, W. G. ..... Fargo
Burton, Paul H. ..... Fargo
Busch, U. F. ..... Fargo
Callander, C. N. ..... Fargo
Campbell, J. W. ..... Fargo
Campbell, T. R. ..... Arthur
Carpenter, Geo. A. ..... Fargo
Clark, S. B. ..... Buffalo
Darrow, E. M. ..... Fargo
Fish, H. G. ..... Hope
Gronwold, A. C. ..... Fort Ransom
Hofmann, P. E. ..... Fargo
James, J. B. ..... Page
Kachelmacher, C. ..... Fargo
Labbitt, L. H. ..... Enderlin
MacGregor, Murdock ..... Fargo
Miller, H. W. ..... Casselton
Morris, A. C. ..... Fargo
Nelson, W. P. ..... Knox
Nichols, A. A. ..... Fargo
Patterson, A. G. ..... Lisbon
Patterson, T. P. ..... Lisbon
Olson, G. M. ..... Fargo
Rindlaub, Elizabeth P. ..... Fargo
Rindlaub, J. H. ..... Fargo
Rindlaub, M. P. Jr. ..... Fargo
Rowe, H. J. ..... Casselton
Sand, O. ..... Fargo
Savage, J. L. ..... Fargo
Scanlon, Wm. ..... Fargo
Sorkness, Paul ..... Fargo
Tronnes, Nils P. ..... Fargo
Wands, E. E. ..... Lisbon
Weible, R. E. ..... Fargo

DEVILS LAKE DISTRICT MEDICAL SOCIETY

PRESIDENT

Jones, W. D. ..... Devils Lake

SECRETARY

G. F. Drew ..... Devils Lake
Call, A. M. ..... Rugby
Carter, J. A. ..... Warwick
Claybough, W. R. ..... Rolette
Fawcett, W. C. ..... Starkweather
Floew, A. T. ..... Minnewaukan
Hamilton, J. S. ..... Hansboro
Harris, F. C. ..... Cando
Lamont, J. G. ..... Cando
Lemieux, D. ..... Dunseith
McGurren, C. J. ..... Devils Lake
McIntosh, G. J. ..... Devils Lake
Moeller, J. H. ..... Maddock
Roberts, F. J. ..... Cando
Sihler, W. F. ..... Devils Lake
Smith, Clinton ..... Devils Lake
Swenson, A. W. ..... Bisbee
Verrett, B. D. ..... Rolla
Warren, J. W. ..... Leeds
Widmeyer, J. P. ..... Dunseith

GRAND FORKS DISTRICT MEDICAL SOCIETY

PRESIDENT

Wheeler, H. M. ..... Grand Forks

SECRETARY

Ruediger, G. F. ..... University

Arneberg, J. G. ..... Grand Forks
Arneson, A. O. ..... McVille
Beek, R. H. ..... Lakota
Bentzen, Olaf ..... Grand Forks
Caldwell, G. H. ..... University
Campbell, R. D. ..... Grand Forks
Church, Richard ..... Park River
Countryman, J. E. ..... Grafton
Crane, C. S. ..... Grand Forks
Dean, Alfred ..... Grand Forks
Deason, F. W. ..... St. Thomas
Donovan, E. I. ..... Langdon
Duggan, F. J. ..... Grand Forks
Eggers, Aug. ..... Grand Forks
Ekern, A. ..... Grand Forks
Engstad, J. E. ..... Minneapolis, Minn.
Field, A. B. ..... Forest River
French, H. E. ..... University
Galbraith, J. E. ..... Cavalier
Gibson, S. G. ..... Langdon
Glaspel, G. W. ..... Grafton
Grassick, Jas. ..... Grand Forks
Gronvold, F. O. ..... Adams
Harris, C. B. ..... Pembina
Healy, H. H. ..... Grand Forks
Irby, M. R. ..... Lankin
Irwin, S. H. ..... Grand Forks
Johnson, John A. ..... Mountain
Joistad, A. H. ..... Fairdale
Kammann, H. F. ..... Hannah
Landry, L. H. ..... Walhalla
Law, H. W. F. ..... Hannah
Lommen, C. E. ..... Fordville
McLean, R. M. ..... Gilby
McQueen, W. W. ..... Langdon
Manley, J. R. ..... Niagara
Marsden, C. S. ..... Grand Forks
Montgomery, John ..... Ardoch
Mugan, J. J. ..... Langdon
Mulligan, T. ..... Grand Forks
Olson, Chresten ..... St. Thomas
O'Keefe, H. ..... Grand Forks
Peterson, O. T. ..... Northwood
Rumerich, E. A. ..... Pisek
Sandven, N. O. ..... Park River
Scott, R. A. ..... Crystal
Scott, W. W. ..... Walhalla
Smith, J. C. ..... Thompson
Suter, J. C. ..... Grafton
Vinge, Syver ..... Grand Forks
Wagar, W. D. ..... Michigan
Waldren, H. M. ..... Drayton
Walker, J. J. ..... Cavalier
Weed, Frank E. ..... Lankin
Welch, W. H. ..... Larimore
Westeen, A. A. ..... Grand Forks
Williamson, G. M. ..... Grand Forks
Willson, H. S. ..... Crystal
Wilson, W. C. ..... Grand Forks
Witherstine, W. H. ..... Grand Forks
Woutat, H. G. ..... Grand Forks
Wylie, A. R. T. ..... Grafton

HETTINGER COUNTY MEDICAL SOCIETY

(No report received from this Society.)

NORTHWESTERN DISTRICT MEDICAL SOCIETY

PRESIDENT

Carr, Andrew ..... Minot

SECRETARY

Brugman, F. A. ..... Minot

Aaker, A. O. ..... Velva
Bell, D. H. ..... Kenmare
Blatherwick, W. E. ..... Drake
Christie, F. J. ..... Burlington
Coffin, G. H. ..... Dogden
Collinson, H. M. ..... Rugby
Cramond, J. E. ..... Rugby
Darland, F. L. ..... Sawyer
Davies, J. S. ..... Granville
Devine, J. L. ..... Lansford
Distad, E. O. ..... Williston
Dochterman, L. B. ..... Williston
Durnin, George A. ..... West Hope

Durnin, Chas.....West Hope
Eltun, T. J.....Velva
Ewing, F.....Kenmare
Farrage, J. .....Deering
Fitzmaurice, E. S.....Mohall
Flath, Milford G.....Stanley
Hagan, E. J.....Williston
Hallderson, M. B.....Souris
Halliday, J. .....Mohall
Hanson, G. C.....Charlson
Hillis, S. J.....Berthold
Jenson, M.....Cottonwood Lake
Johns, S. M.....Velva
Johnson, J. A.....Bottineau
Kennedy, E. F.....White Earth
Kermott, L. H.....Minot
King, C. J.....Columbus
Kolb, F. K.....Granville
Lancaster, Blake McK...Crosby
Leedahl, O. S.....Palermo
Lord, B. E.....Glenburn
MacKay, A. R.....Bottineau
MacManus, F. W.....Williston
McCannel, A. J.....Minot
McCannel, Archie D.....Minot
McEssy, E. W....New Rockford
McLean, N.....Kenmare
Newlove, J. T.....Minot
Newlove, J. W.....Minot
Nicholson, A. S.....Max
Nugent, O. B.....Harvey
Overgard, S .....Minot
Owenson, H. A.....Deering
Paulson, A. J.....Flaxton
Pence, J. R.....Minot
Pierson, C. M.....Ambrose
Plourde, W. A.....Overly
Perkins, J. R.....McGregor
Rainville, S.....Tolley
Ransom, E. M.....Minot
Ray, R. H.....Garrison
Ringo, G. Roy.....Minot
Rogers, Joseph.....Donnybrook
Rudell, G. L.....Plaza
Scott, W. B.....Ray
Stewart, M. A.....Omemee
Stone, E. C.....Balfour
Thorvalson, O. .....Wildrose
Trainor, M. E.....Stanley
Wheelon, F. E.....Minot
White, S. George.....Ambrose
Wiig, I. C. J.....Kenmare
Yeomans, T. N.....Minot
Youtz, H. LaMont...Willow City

RICHLAND COUNTY MEDICAL SOCIETY

PRESIDENT

Young, V. A.....Hankinson

SECRETARY

O'Brien, T.....Wahpeton

Bean, O. G.....Walcott
Christensen, W. .....Lidgerwood
Devine, Robt. H.....Wahpeton
Greenman, N. H.....Fairmount
Ivers, M. U.....Abercrombie
Maertz, W. F.....Lidgerwood
Meckstroth, L. W.....Wahpeton
Sasse, E. G.....Lidgerwood
Shields, N. J.....Lidgerwood
Steele, D. C.....Fairmount

SHEYENNE VALLEY MEDICAL SOCIETY

PRESIDENT

Pray, E. A.....Valley City

SECRETARY

Wicks F. L.....Valley City

Almklov, L. .....Cooperstown
Brimi, C. L.....Cooperstown
Crosby, E. B.....Oriska
Lang, A. A. J.....Sanborn
LeBien, E. A.....McHenry
Macdonald, A. W....Valley City
Nolte, W. C.. .....Dazey
Platou, L. S.....Valley City
Spear, E. D.....Nome
Spicer, C. E.....Litchville
Truscott, J. R.....Binford
VanHouten, J.....Valley City
Westley, M. D.....Cooperstown
Zimmerman, S. A....Valley City

SIXTH DISTRICT MEDICAL SOCIETY

PRESIDENT

Kranz, M.....Mandan

SECRETARY

Altnow, H. O.....Mandan

Benson, O. T.....Glen Ullin
Bodenstab, W. H.....Bismarck
Brandt, A. M.....Bismarck
Bunting, F. E.....Mandan
Bursma, J.....New Salem
Buzzel, C. H.....Cleveland
Cain, A. T.....Underwood
Eastman, L. G.....Krem
Fisher, A. M.....Bismarck
Furness, G. B.....Mandan
Foster, W. B.....Mandan
Gaebe, O. C.....New Salem
Griebenow, W. .....Bismarck
LaRose, V. J.....Bismarck
MacLachlin, T. M.....Bismarck
Mathews, G. A.....Napoleon
Nickerson, B. S.....Mandan
Place, B. A.....Elgin
Pryse, T. S.....Dawson
Quain, E. P.....Bismarck
Quain, F. D.....Bismarck
Rice, P. F.....Cannon Ball
Ramstad, N. O.....Bismarck
Roan, M. W.....Bismarck
Sawyer, W. H.....Washburn
Schipfer, L. A.....Bismarck
Smith, C. C.....Stanton
Smyth, F. R.....Bismarck
Spielman, G. H.....Flasher
Stackhouse, C. E.....Bismarck
Strauss, F. B.....Bismarck
Stucke, E. C.....Garrison
Thilen, W. P. .....Wilton
Thompson, R. C.....Wilton

SOUTHERN DISTRICT MEDICAL SOCIETY

PRESIDENT

Ribble, Geo. B.....LaMoure

SECRETARY

Meigs, Benj. L.....Edgeley
Barbour, H. W.....Edgeley
Benn, Fred. G.....Kulm
Grant, Geo.....Wishek
Greene, L. B.....Monango
Hillis, A. E.....LaMoure
Langsdale, H. B.....Lehr
Lyle, W. D.....Havana
Maercklein, C. J.....Judd
Maercklein, F. W.....Oakes
Phillips, A. E.....Dickey
Ryder, B. E.....Oakes
Saylor, H. S.....Cogswell
Wentz, H. B.....Verona

SOUTHWESTERN DISTRICT MEDICAL SOCIETY

PRESIDENT

Smith, F. Dale.....Reeder

SECRETARY

Whittemore, A. A.....Bowman

Barbour, W. L.....Marmarth
Bordwell, F. A.....Marmarth
Curtis, J. E.....Haynes
Ewbank, J. Nelson.....Rhame
Munro, Neil A.....Bowman
Murray, K. M.....Scranton
Schneider, J. E.....Bowman
Schussler, O. F.....Marmarth
Voss, Carl.....Hettinger

STARK COUNTY MEDICAL SOCIETY

PRESIDENT
Bowen, Jesse W.....Dickinson

SECRETARY
Perkins, George A.....Dickinson

Davis, H. A.....Dickinson
Furman, Raymond W.Richardton
Maercklein, O. C.....Dickinson
Museus, H. Benjamin.....Beach
Neff, Elizabeth A.....Emerson
Schierbaum, A. F. E.....Hebron
Smith, Sarah E.....Dickinson
Smith, Oscar.....Manning
Spear, A. E.....Belfield
Stickney, Victor H....Dickinson
Weyrens, Joseph P.....Taylor

STUTSMAN COUNTY MEDICAL SOCIETY

PRESIDENT
Wood, W. W.....Jamestown

SECRETARY
Golseth, G. .....Jamestown
Artz, P. G.....Jamestown
Earl, H. D.....Jamestown

Freese, E. M.....Jamestown
Gerrish, W. A.....Jamestown
Guest, A. W.....Jamestown
Hattendorf, Jessie....Jamestown
Hotchkiss, W. M.....Jamestown
Longstreth, W. E. J.....Kensal
Martin, T. P.....Streeter
Meunier, H. J.....Jamestown
Movius, A. H.....Jamestown
Wink, Helen K.....Jamestown

TRAILL-STEELE MEDICAL SOCIETY

PRESIDENT
Anderson, A. G.....Hillsboro

SECRETARY
Knutson, O. A.....Buxton

Critchfield, L. R.....Galesburg
Fortun, Olaf.....Mayville
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MacKenzie, J. R..New Rockford
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MacLachlan, Chas..New Rockford
MacManus, F. W.....Williston
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McIntosh, G. J.....Devils Lake
McLachlan, T. M.....Bismarck
McLean, N.....Kenmare
McLean, R. M.....Gilby
McQueen, W. W.....Langdon
Maercklein, C. J.....Judd
Maercklein, F. W.....Oakes
Maercklein, O. C.....Dickinson
Maertz, W. F.....Lidgerwood
Manley, J. R.....Niagara
Marsden, C. S.....Grand Forks
Martin, T. P.....Streeter
Mathews, G. A.....Napoleon
Meckstroth, L. W.....Wahpeton
Meigs, Benj. L.....Edgeley
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Movius, A. H.....Jamestown
Mugan, J. J.....Langdon
Mulligan, T.....Grand Forks
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Museus, H. Benj.....Beach
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Nelson, W. P.....Knox
Newlove, J. T.....Minot
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Nickerson, B. S.....Mandan
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Place, B. A.....Elgin
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Rice, P. F.....Cannon Ball
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Rindlaub, John H.....Fargo
Rindlaub, Martin P., Jr....Fargo
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Roan, M. W.....Bismarck
Roberts, F. J.....Cando
Rogers, Joseph.....Donnybrook
Rowe, H. J.....Casselton
Ruediger, G. F.....University
Rudell, G. L.....Plaza
Rumerich, E. A.....Pisek
Ryder, B. E.....Oakes
Sand, O.....Fargo
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Sasse, E. G.....Lidgerwood
Savage, J. L.....Fargo
Savre, M. T.....Sharon
Sawyer, W. H.....Washburn
Saylor, H. L.....Cogswell
Scanlon, Wm. .....Fargo
Schierbaum, A. F. E.....Hebron
Schipfer, L. A.....Bismarck
Schneider, J. E.....Bowman
Schussler, O. F.....Marmarth
Scott, R. A.....Crystal
Scott, W. B.....Ray
Scott, W. W.....Walhalla
Shields, N. J.....Lidgerwood
Sihler, W. F.....Devils Lake
Skelsey, A. W.....Fargo
Smith, C. C.....Stanton
Smith, Clinton.....Devils Lake
Smith, F. Dale.....Reeder
Smith, J. C.....Thompson
Smith, Oscar.....Manning
Smith, Sarah E.....Dickinson
Smyth, F. R.....Bismarck
Sorkness, Paul.....Fargo
Spear, A. E.....Belfield
Spear, E. D.....Nome
Spicer, C. E.....Litchville
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Stone, E. C.....Balfour
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Stucke, E. C.....Garrison
Suter, J. C.....Grafton
Swenson, A. W.....Bisbee
Thilen, W. P.....Wilton

Thompson, R. C.....Wilton
Thorvalson, O. .....Wildrose
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Wands, E. E.....Lisbon
Warren, J. W.....Leeds
Weed, Frank E.....Lankin
Weible, R. E.....Fargo
Welch, W. H.....Larimore
Westeen, A. A.....Grand Forks
Westley, M. D.....Cooperstown
Wentz, H. B.....Verona
Weyrens, J. P.....Taylor
Wheeler, H. M.....Grand Forks
Wheelon, F. E.....Minot
White, S. George.....Ambrose
White, W. E.....Mayville
Whittemore, Arthur A..Bowman
Wicks, F. L.....Valley City
Widmeyer, J. P.....Dunseith
Wiig, I. C. J.....Kenmare
Williamson, Geo. M.Grand Forks
Willson, H. S.....Crystal
Wilson, W. C.....Grand Forks
Wink, Helen K.....Jamestown
Witherstine, W. H..Grand Forks
Wood, W. W.....Jamestown
Woutat, H. G.....Grand Forks
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Young, V. A.....Hankinson
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Zimmerman, S. A....Valley City

PRESIDENT'S ADDRESS

By A. J. McCannel, M. D.

MINOT, N. D.

Gentlemen of the North Dakota State Medical Association:

I appreciate very highly the honor you have done me in electing me President. I know I have made mistakes in the past year and that I shall make mistakes during these last two days of my term, but, I assure you, any such mistakes are honestly made and while trying to do my best. I want to thank my associates in office and members of the various committees for the loyal support they have given me and the good work they have done in the interests of this Association.

It is not my intention to take up much of your time with an address, leaving it to the gentlemen who follow on the program to give you the things that are new in medicine and surgery, while I review the work done in this state during the last twelve months and make some suggestions that seem practicable for the future.

Since our last meeting we have had a meeting of the State Legislature at which some important legislation was enacted, although there were other bills that we should have liked to see passed that fell by the wayside.

Among the bills passed those of particular interest to us are a law prohibiting false and misleading advertising, which will render it easier to suppress the sale of nostrums and to drive out the advertising specialists; a law providing for the sterilization of confirmed criminals, defectives, the incurably insane, and rapists; new local board of health act; laws prohibiting the sale of cigarettes and snuff; an act prohibiting the promiscuous distribution of drug samples; an act providing for the labelling of meat from diseased animals; a law requiring a physician's certificate as a prerequisite to marriage; and acts providing sanitary regulations for the care of passenger depots and trains and prohibiting the use of the public drinking-cup.

The board of health bill as finally passed fell far short of what was hoped for. As usual, the quacks were present demanding recognition,—this time as chiropractors,—but, fortunately, the good sense of the senate prevailed and the good name of our state was not besmirched by the licensing of these men whom the Flexner report calls "unconscionable quacks." Had this bill passed it would have been due entirely to the apathy of the profession throughout the state in not informing their representatives of the facts in connection with these men.

What to do with the quacks is a question which, like the poor, we have always with us. Attempts have been made during the past year to put out of business several of these parasites, but without success. The reasons for this lack of success were many. In the first place we have had to deal with juries that were ready to swallow as fact any fanciful theories and to give verdicts in accordance with their preconceived notions, rather than in accordance with the evidence. Then, too, we have states attorneys who are inexperienced in this work, pitted against men who are specialists in defending such cases, and we can expect no better results until the attorney for this Association shall be enabled to prepare himself thoroughly and to take part in the prosecution of all these cases. Lack of funds in our treasury has prevented this in the past,

but that lack is now being remedied, and in the future more can be done along that line.

Another reason for the failure to get results in these cases has been the general belief on the part of the public that the medical profession should first rid its own ranks of law-breakers and advertisers, and so long as we elevate to the highest positions in our National Association advertisers, whether of the magazine or the country newspaper type, we must admit that the criticism is just. Our Association is to be congratulated upon the fact that since our last meeting two abortionists have been put behind the bars, and travelling licensed fakers have been almost put out of business. It is only by such continued effort on our part and by putting a stop to fee-splitting and kindred abuses that we can gain the respect and confidence of the laity.

Some time ago this Association went on record on the question of uniform fees for life-insurance examinations. Most of the insurance companies have raised their fees to the standard set at that time, but there is still one notable exception that has held its advertised fee down and is exerting all its efforts by means of underhand agreements and contracts to nullify the action of this Association on the subject. Believing that an examination properly made for any old-line company is well worth a fee of five dollars and that when a doctor makes an examination for any smaller amount he is being cheated by the company without any corresponding gain on the part of the policy-holders, and believing that any such contracts are entered into purely for the purpose of holding the fees down, I would like to see this Association and the local societies again go on record as standing for a uniform fee of five dollars for old-line examinations and condemning utterly any such contracts as certain members of the profession have been entering into.

The question of vital statistics has not been given the attention it deserves. In fairness to the people concerned, births and deaths should be reported at once. The state legislature, in 1911, recognized the fact that we are slow to do our duty in this matter, and it put a provision in the law that a bill for any confinement case could not be collected by suit unless the birth had been reported as required by law.

Last winter a special meeting was held at Devils Lake to discuss legislation and such other matters as are usually crowded out at our annual meeting. The attendance was small, but representative, and the meeting a success in every way. I believe it would be to the advantage of the Association to hold such a meeting every winter.

Our plan of medical defense has been in operation for over a year and has been entirely satisfactory. There seems to be a little misunderstanding of its working on the part of several doctors, but when they have become better acquainted with the plan I am sure their appreciation of it will be increased.

Our membership has shown a slight increase in the past year, and with this increase in size will come increased interest and usefulness. There are yet many doctors in the state eligible for membership, who should come in, and a determined effort should be made to bring them all into our ranks.

I desire to make the following recommendation:

RECOMMENDATIONS

1. A united effort should be made to increase the membership of the component societies with the object of bringing in every man who is eligible for membership.

2. More attention should be given to reporting of vital statistics.

3. The Association's attorneys should be instructed to proceed against abortionists and other law-breakers, as well as quacks, whether licensed or unlicensed.

4. The State Association and local societies should go on record as opposing secret fee-splitting.

5. The State Association and local societies should go on record as opposing any contracts between life-insurance examiners and the insurance companies, except on a straight basis of a five-dollar fee for each examination.

6. No man should be chosen for office, either in the State or National Association, whose record has not always been on a par with the code of ethics adopted by both Associations.

INFANT-FEEDING IN THEORY AND PRACTICE*

By F. W. Schlutz, M. D.
Instructor in Pediatrics, University of Minnesota
MINNEAPOLIS

Modern infant-feeding represents great progress and advance over what it was a decade ago. It must be said, at the outset, that for the best thought and best observations in this field we are indebted to the European clinics, particularly those of Germany.

To give in detail all the things that have made for advance in this important subject would be difficult, if not impossible, in the course of a short essay.

To grasp the subject, however, and to understand it well, it will be necessary to fix in the mind some fundamental things—some of the things upon which the newer theories in regard to infant-feeding hinge and about which systems of infant-feeding have been built.

First of these fundamentals was the measurement of the infant's food according to caloric standard, that is, expressing the volume of each of the three principal food components in terms of the great calorie, 1 gm. of proteid being equivalent to 4 calories and 1 gm. of carbonhydrate also to 4 calories, and 1 gm. of fat to 9 calories.

Heubner, to whom we are indebted for the introduction of this method of measuring the energetic value of an infant's food, established the fact that an infant required, as a minimum to sustain life, a food equivalent to at least 70 calories for every kgm. (2.2 lb.) of body-weight of the child, and, in order to establish a consistent gain, a food which represents at least between 90 and 120 calories for every kgm. body-weight of the child.

To illustrate: A baby weighing 6,000 gms. (12.2 lbs.) is fed 8 ounces of a one-third milk mixture, i. e., one part milk and two parts of water (without sugar, caloric value per liter, or quart, equals 200 calories) five times a day for a long time. This would mean that the baby was getting a food value of about 33 calories for every kgm. of body-weight. Obviously, this infant would be tremendously underfed and could not possibly exist long with food of such value.

As the sample just cited illustrates, measuring the food according to the caloric value affords us an excellent check in our infant-feeding. That it did not solve the problem of infant-feeding soon became apparent. Whether the fat, proteid, or carbohydrate component is predominantly responsible for the caloric value of the food, makes, indeed, a vast difference.

Out of these observations grew the second fundamental advance, namely, the conception of a food-tolerance of the infant organism.

This means that for every component in its food the infant possesses a certain line of tolerance within the limits of which a complete assimilation is possible. A transgression beyond, or overstepping of the limits of, this tolerance means non-assimilation with resulting defect in the metabolism and early appearance of trouble.

The best ideas on this subject we owe to Finkelstein. From his studies on food-tolerance he developed the idea of using the food itself as a means of primarily determining the line of tolerance. He gave this process the name of *functional diagnosis.* An illustration will make clear the application of this process. An infant presents, let us say, some alimentary disturbance. He is six months old, but weighs only 3,200 gms. We wish to determine his tolerance for food. Our choice would be an indifferent mixture, generally used at that age, let us say, of one-half cow's milk and water without sugar. The caloric food value is sufficient for an infant of that weight. This mixture is fed for 24 to 48 hours. Development of symptoms of disturbance with a drop in the weight-curve would mean that the line of tolerance has been overstepped—that this line for all artificial foods probably lies very low; while an upward bend of the weight-curve and continuance of favorable symptoms would mean that the food is assimilated and is well within the infant's line of tolerance. Application of the principles of caloric feeding and food-tolerance necessitated the third fundamental step, that is, the more intensive study of the three principal food components: proteid, fats, and carbohydrates.

These studies were directed particularly to their physiological characteristics: the changes they underwent during metabolism and the reaction they caused when introduced into the body under varying conditions of health and disease.

It is impossible to quote in detail all the mass of observation and experimentation which has

*Read at the 31st annual meeting of the South Dakota State Medical Association at Mitchell, May 22 and 23, 1912.

led to end-results. The most interesting, the most practical, facts which stand out above all others are, that the infant organism has the greatest line of tolerance for proteids, and that, even with the highest amount of proteid given in a food mixture, the albumin milk of Finkelstein, infants in health and disease are able to metabolize fully up to 76 per cent of the proteid administered. We have, then, in infant-feeding of today no fear of the proteid component.

For fat the tolerance, as Czerny has shown, is always limited; in fact in the organism in which the constitutional manifestations of exudative diathesis, of which I shall speak later, obtain, the tolerance lies at times at an exceedingly low point.

Fat is held principally responsible for many alimentary disturbances. Certain it is, that, once an alimentary disturbance is established, particularly one accompanied by diarrhea, the organism becomes very intolerant to fat.

This tolerance can be raised if the fat is given with large quantities of proteid in the absence of sugars. Carbohydrates, originally given little attention in infant-feeding, have come to be recognized as the most important food component. Finkelstein believes that the beginning of all alimentary disturbances accompanied by diarrhea is traceable to the improper use of carbohydrates. In these conditions it is the most dangerous food component, but at the same time the one most essential for recovery.

No substantial gain in weight occurs until enough carbohydrate is added to properly establish the fluid-retaining properties of the cells of the body. It must be kept in mind that 1 gramme of carbohydrate requires about 30 grammes of fluid to hold it in solution in the tissues.

Great difference also exists in the infant organism's tolerance for the different sugars and starches. Strangely enough, it has the lowest tolerance for lactose, except when contained in the medium breast-milk. We have, as yet, no good explanation for this apparent discrepancy. With all our study of breast-milk, this medium still remains a mystery. We only know empirically that under identically the same conditions —let us say, e. g., in a severe case of cholera infantum—the organism will tolerate and assimilate an amount of lactose which, if given in equal amount in an artificial food medium, would rapidly prove fatal.

The best tolerance exists for maltose and the dextrines, while saccharose takes an intermediate position between lactose and maltose. Starches in the form of flour are assimilated well only after the third month, and very well when given in the form of cereals, bread, or vegetables after the sixth month.

The fourth fundamental step, in my opinion, was brought about by the change in the technic of feeding. The long-interval feeding, originally advocated by Budin of France, has been adopted by every pediatric clinic of Europe. I believe it is no exaggeration to say that alimentary disturbances in infants can be reduced by one-half by thoroughly and conscientiously carrying out the long-interval feeding. One who has thoroughly tried it never discards it. The four-hour interval has proven the most successful.

As a fifth and epoch-making advance, I should name Czerny's masterful exposition and development of the disease-complex, which he has named *exsudative diathesis.*

Expressing itself in many forms—at one time in a marked facial eczema or as an intolerable prurigo; at another in pronounced nasopharyngeal hypertrophy or hypertrophy of all lymphatics (the scrofulous type)—it is a condition with which we have been familiar for years, but upon which we were wont to look as separate disease entities. It is due to the excellent studies of Czerny that we now recognize the whole complex as only one and the same expression of an abnormal constitution (a constitution with one or several serious defects) transmitted, in some instances, from generation to generation.

The importance of the recognition of this condition is sufficiently emphasized if we accept Czerny's view that probably 75, if not 80, per cent of all infants born, present, at some early period in their career, manifestations of the state of exudative diathesis.

These infants are most intolerant to the fat component in the food. Alimentary disturbances in them are always accompanied by profuse mucous diarrheas. The tolerance for the carbohydrates, particularly the starches, is fortunately excellent.

As a sixth and final step, up to the present time, I should name the advantage which has resulted from attempts to form new classifications for diseases of the alimentary tract. For such a classification we are indebted to Finkelstein. His seems to me the simplest, at the same time the most logical and the one most readily understood.

He first divides all alimentary disturbances into two great divisions:

A. Those in which the symptoms point simply to a disturbance in the process of digestion and food-assimilation.

B. Those in which the symptoms indicate that other agents than the food ingested are the cause of the disorder. He styles this division *gastro-intestinal disturbances*, due to infection. There are distinct inflammation and alteration of the intestinal wall itself, as evidenced by pus and blood in the stool. The temperature persists independently of the food ingested. This is true enteritis and these two symptoms fundamentally differentiate it from Division A.

Division A, designated collectively by Finkelstein as *enterocatarrh*, is subdivided into several stages, depending upon the degree to which the process has advanced.

The earliest stage is designated as the state of disturbance of balance. We have no analog to this designation in our American texts; in fact, the condition is not described.

Infants in this stage seem well, but remain stationary in weight for weeks on food which is known to be sufficient both in quality and quantity. A pronounced pallor and obstinate constipation are two other prominent symptoms. Finkelstein likens this state to a balance-sheet. Sufficient resources are presented, but the organism utilizes them to such a small extent that the balance is barely equal and frequently inclines to the negative side.

Non-relief of the first stage leads to the second stage, *the dyspepsia*.

More frequently this second stage is brought on more precipitately by acute errors in the feeding, especially the use of improper food.

It is this stage which we most commonly meet in practice and which has been described under a multitude of names in the different texts. The principal characteristics of this stage are the rather sharp and pronounced weight-losses, the irregular curve of the temperature, lassitude and irritability of the infant, and, above all, the beginning tendency to looseness and the catarrhal type of stool.

At this point there comes, depending upon the measures of relief adopted, a division into two great substages.

If the dyspepsia remains unrelieved, or if, in attempting relief, unfortunately, the choice of food was wrong and thus a further insult was added to a condition which already was dangerous, the precipitate and stormy picture of acute intoxication, familiarly known with us as cholera infantum, may develop. The temperature is exceedingly high; the prostration and weight-losses are tremendous; and the diarrhea at times seems uncontrollable.

On the other hand, if the dyspepsia is relieved, but, through constantly recurring errors in feeding or in the choice of food, again and again recurs, we find the infant's tolerance for all foods and all food components finally sinks to a minimum or almost nothing.

The cells of such an organism become so vitally damaged, so decomposed in their cellular metabolism, that the essential fluid-retaining properties of the cells are lost. The weight losses are steady and seem irreparable. Even the smallest amount of food offered seems beyond the limit of tolerance of these infants.

Finkelstein designates this stage or condition *dekomposition*. You will, no doubt, recognize the familiar picture of atrophy or marasmus.

Before taking up the practical side of infant-feeding, it will be necessary to pass in review and discuss briefly the characteristic of the different foods used in infant-feeding.

It should not seem necessary to discuss the merits or demerits of breast-milk, but when we consider that many practitioners almost prefer artificial food over breast-milk and wean on the least pretext,—that the milk is too rich or too thin, and does not agree with the baby,—it is necessary to call attention to the best of all infant's food. I firmly believe I am stating an absolute fact when I say that all breast-milk is good. That the trouble lies, not with the milk, but with the baby itself and with the attendant giving it.

Breast-milk represents about 700 calories to the liter, or quart. Some of its characteristics are still a mystery; one thing, however, is certain, if given in the proper amount it agrees with every infant organism under every known condition of disease.

Cow's milk is practically used in four different strengths, depending on different ages of the infant. In the one-third milk mixture (1 part milk and 2 parts water), caloric value per liter, or quart, of 220 calories, with 5 per cent sugar and 2 per cent oatmeal water added in place of the water, the caloric value can be raised to 500 calories per quart, or liter.

In the one-half milk (equal parts of milk and water), caloric value of 340 calories per liter,

with 5 per cent sugar and 2 per cent oatmeal water added, the value rises to 620 calories.

In the two-thirds milk (2 parts milk and 1 part water), caloric value 450, with 5 per cent sugar and 2 per cent oatmeal water added, the value rises to 730 calories per liter.

Whole milk has a value per liter of 680 calories.

Skimmed cow's milk has a value of 410 calories per liter.

I believe these simple dilutions of cow's milk will appeal as preferable to our laborious percentage system. The fat or carbohydrate contents can be altered at will by skimming the milk or by adding the various sugars and starches, thus making it possible to adjust this food to a wide range of tolerance in the infant.

Whey has a caloric value of 230 calories per liter, or quart. The small percentage of proteid and fat and the relatively high content of sugar and salt are its chief characteristic.

Buttermilk has a caloric value of 410 calories per liter, without carbohydrate. It is a fat-free food and low in sugar, but contains all the proteid and salt of a quart, or liter, of cow's milk.

Adding carbohydrate, usually two ounces of cane sugar and one-half ounce of wheat flour, raises its caloric value to 690 calories to the quart and changes the food from what was practically a sugar-free mixture to one very high in the carbohydrate, lactose, and saccharose.

The malt soup of Keller is practically a one-third milk mixture with 11 ounces of wheat flour and 3 ounces of malt extract added. The caloric value is 800 calories per liter. It is a food very high in carbohydrate, but this consists of maltose, the sugar to which the infant organism is most tolerant. The amount of wheat flour it contains limits its use in early infancy.

The albumin milk of Finkelstein, the most recent addition to our infant's foods, has 400 calories to the quart. This food contains the precipitated proteid and fat of one quart of cow's milk and of one-half quart of buttermilk, but only the sugar and salt of one-half quart of buttermilk. This is a very strange mixture, but it is one which has given astonishing results in the worst cases of enterocatarrh associated with diarrhea. By adding carbohydrate, preferably maltose and wheat flour, the caloric value of this food can be decidedly increased.

In taking up the practical side of infant-feeding, I prefer to speak, first, of the feeding of infants affected with some manifestation of exudative diathesis. The important point to remember is the intolerance to fat. These are the infants which react with intolerable colics or constant spitting or vomiting, to frequent and irregular breast-feeding, and are, on this account, weaned. The first step in the therapy to adopt at once the long interval of feeding and then allowing only limited amounts of breast-milk, determined by weighing before and after feeding, seldom more than two ounces. If there is still distress, it is necessary to go below that quantity and make up the deficiency by supplementary feeding of a fat-free mixture, such as one-third skimmed milk with 5 per cent sugar, or a small quantity of buttermilk. These infants take cereals, breads in the form of toast, and vegetables very well after the sixth month; in fact, beginning with the seventh month, this should be the predominant element of the diet. It is well to avoid the fat, in any form, up to the second and third year.

The condition of disturbance of balance, as Finkelstein calls it, is one quite commonly met. We see this again in the infant at the breast, where we see the combination of short-interval feeding, a vigorous nursing baby, and abundant breast secretion. It is met much more commonly, however, in infants fed irregularly on large quantities of cow's milk and this particularly rich in cream. This condition is, again, principally a fat-disturbance. Contrary to the general belief that the constipation in this condition is relieved by adding cream, it is in fact thereby increased. The hard, dry stools in this condition are almost entirely made up of fatty soaps.

It is of prime importance to decrease the fat and to increase the carbohydrate.

This can be met in several ways: first, by adopting the long-interval of feeding, thus materially reducing the quantity of milk given. Cow's milk should be skimmed, with generous percentages of sugar, preferably saccharose, added. Better still than the milk mixture is the use of buttermilk before the third month, and the use of Keller's malt soup in the later months. Few alimentary disturbances of infancy respond more gratefully to treatment.

In the dyspepsia the process is different. Something other than the fat starts the trouble. It is usually either dirty food or the improper use of carbohydrates. There is always the picture of fermentation, which means intolerance to carbohydrate in almost any form. A most successful way to treat a beginning dyspepsia

consists in giving a laxative, preferably castor oil, and not calomel, and withdrawing all food for a period of 24 or 48 hours. Water sweetened with saccharin must be given freely. The temperature must be normal before feeding is attempted. Small quantities of breast-milk given every four hours are always well taken. With artificial feeding it is best to add to the first 24-hour period of starvation a second 24-hour period of some gruel without milk or sugar and only on the third day begin with very small quantities of milk—as little as one teaspoonful to a feeding of gruel—every four hours. By this time the tolerance for the various food components is generally re-established and it is safe to go to stronger milk mixtures, using the milk skimmed, however, and not adding much sugar until fully a week has elapsed since the beginning of the attack.

Buttermilk, unless given without carbohydrate additions, and malt soup are dangerous foods in a dyspepsia.

The feeding in acute intoxication, or cholera infantum, is much the same as in a dyspepsia, but requiring greater precaution as regards the early addition of sugar and fat.

It is in this condition that the albumin milk of Finkelstein and Meyer has given such remarkable results. It is possible to feed this food as early as 12 hours, certainly in 24 hours, after the development of an acute intoxication. Given at first in very small amounts, one or two tablespoonfuls every four hours, it can be increased more rapidly and safely than any other food mixture known, not excepting breast-milk. Not alone is its administration not followed by aggravation of the diarrhea, but, quite to the contrary, the stool rapidly becomes firm and takes on the fatty soap character. This means that it is safe to add sugar, the all-important food component necessary to replace in the cells the enormous loss of fluid.

Second to albumin milk the choice would be breast-milk, or buttermilk without sugar, all foods, of course, being given at first in very small quantities and at long intervals.

I will mention, in passing, the vast importance of giving enough fluid in the form of water in this condition.

For the stage of decomposition, or atrophy, only one food will give certain results, and that is breast-milk. If that is not available, the foods less apt to fail than others would be small quantities of buttermilk with moderate additions of carbohydrate, or the albumin milk with maltose, or whey with precipitated casein and fat added. It is safe to proceed only with the smallest possible quantities until gain in weight assures an increase in the food-tolerance.

The choice of sugar in artificial food should, if possible, always be some maltose preparation. It is never safe to starve these infants longer than 12 hours. Slow enteroclysis is the most satisfactory way to administer fluid.

In the true enteritis the two foods that, above all others, will be successful are breast-milk and malt soup. In this condition the food tolerance remains fairly good. It is only a question of food quantity and giving food which, in small quantity, yet has large caloric value. The tolerance for the carbohydrate maltose remains uniformly good. Both breast-milk and malt soup should be given at first in small quantities, the latter, preferably, dilute at first. It is a mistake to starve an enteritis case beyond 48 hours, or to wait until the temperature comes down. It may not do this for weeks.

It is necessary to say a few words in regard to the feeding in the condition of pylorospasm or pyloric stenosis.

Three foods have proven the most successful. In order they are breast-milk, preferably expressed and given cold, or buttermilk, or peptonized whole milk. Only very small quantities of food must be used.

In this condition, again, the long interval of feeding insures to the infant greater tolerance and capability of food assimilation.

DISCUSSION

Dr. T. B. Smiley (Mount Vernon): When I received a program of this meeting I was very much pleased to find that we were to have a paper on disturbance of the gastro-intestinal tract in babies. Living, as I do, in a state made up almost entirely of rural communities, this subject is not so important as it is in large cities, but still there is great need for more definite knowledge of this subject even out here in Dakota. We have heard at various times prominent surgeons, internalists, and various other specialists on subjects in which we took a great interest, but, so far as I know, this is about the first time we have heard anything on the subject of infant-feeding. Our work in the past on this subject has been carried out to a large extent about as I heard the superintendent of a prominent institution in a nearby city a short time ago state it. She said we have no definite or any reliable rule for quantity or quality of food in feeding children. She said it was simply all experimental. We try one food after another, and if the baby survives we finally find something that really suits him. I think if a classification, such as that mentioned today, some definite rule regarding quantity and quality of food for the

baby, and also intervals of feeding were adopted it would have a very beneficial result, and it is a thing that should be impressed upon us here in South Dakota. We need definite rules in regard to diagnosis and in regard to differentiation. I think papers like these will stimulate us to closer study of these requirements and result in a much better treatment.

In regard to a long interval of feeding: I would like to have the author of this paper state to us a little more definitely what he considers a *long* interval of feeding, when he comes to close the discussion of his paper.

I want to say a word in regard to weaning. It has been my observation in the past that babies have been weaned far too often on the plea that the mother's milk was not suitable for the baby. As a result, the babies were weaned, and the further result was that these babies did not do nearly as well as if they had been kept on the breast. There has been too great a tendency to do that in the past. It is something we want to overcome. There is no food for the baby like mother's milk. I was forcibly struck by this idea a few years ago in Philadelphia. I frequently went into a clinic carried on by a prominent man on this subject, and he said: "In Philadelphia in our foundling institutions we hire nursing mothers who have a little milk to spare from their own babies to go to these institutions and once a day nurse those little foundlings a short time, and we pay them according to the increase in weight the baby shows after nursing. We find in this way that the danger of infection to children is greatly decreased, and the mortality has been distinctly diminished. There is no food for babies like mother's milk." Before a baby is weaned a mother should be carefully examined, and there should be some definite knowledge as to why the baby should not continue to be nursed by the mother.

The caloric value of food I believe is a matter we ought to study carefully. We have been very neglectful of this matter in the past. I venture to say there are not half a dozen men attending this meeting that could tell the caloric value of milk and eggs. I believe I am perfectly safe in saying that we know practically nothing about it. There are perhaps, not half a dozen here who can tell how many calories a child requires to sustain life and give it a good normal growth.

This paper, in my opinion, is one of the most important presented at this meeting of the Association, and it is well for us to remember carefully what has been said and let it stimulate us to a closer study of infant-feeding.

Dr. F. W. Schlutz (Essayist): In regard to feeding: The four-hour interval is the one that has proven most satisfactory. Five hours is rather too long a period, but a four-hour interval seems to be the proper thing. An interesting line of experimentation has led up to this result. It has been found that milk does not disappear from the stomach until about the third hour. That is a practical illustration why it is a mistake to feed an infant every two hours or every hour and a half, irrespective of age. Dr. Litzenberg, of Minneapolis, is going to present a paper at Atlantic City illustrating the value of long-interval feeding for premature infants. I recall the cases of three premature babies. One weighed sixteen hundred grams and the other only fifteen hundred grams, and the third about the same, which is just about one-half of what a normal child weighs at birth. These children were fed at five-hour periods and showed steady gain in weight.

In regard to the caloric value of food: It is well to remember that knowledge of the caloric value of the food does not solve the whole problem. We used to think if a baby was getting the required amount of calories that was all that was needed in infant-feeding. There are many things to take into consideration besides the caloric value of the food.

In regard to the salt solution: I think we should not hesitate to use it, preferably and probably per rectum.

REPORT OF AN AUTOPSY ON A CASE IN WHICH BOTH OF THE RECTUS MUSCLES WERE CUT TRANSVERSLY

By S. R. Maxeiner, M. D.

MINNEAPOLIS

At an autopsy performed by Dr. Bell, of the University of Minnesota, April 7, 1913, on the body of a patient who died suddenly from pulmonary embolism two weeks after a hysteromyomectomy (operation by Dr. Farr), complicated by a four months' abdominal pregnancy, the following conditions were found which are of special importance to those interested in transverse incision where the recti are cut off. Both recti were cut nearly across because of the inability to deliver the large mass with the instruments at hand. A portion of the anterior abdominal wall (See Fig. 1, a photograph of specimen) was removed subcutaneously and presented before the Hennepin County Medical Society, April 7, 1913, and revealed the following points of particular interest:

1. The peritoneal surface had no adhesions and was so clean and glistening, with healing so perfect, that the line of suture could be determined only by careful examination. This condition is insured by everting the edges, i. e., an ectropion, as was done in this case (Fig. 2, A).

2. The aponeurosis forming the anterior sheaths of the recti was overlapped so that the line of suture was two layers thick. The two flat surfaces healing in this manner presented an unusually strong union (Fig. 2, B), which appears much stronger than an edge-to-edge approximation.

3. The overlapping of the anterior sheaths of

the recti approximated the retracted ends of the cut muscle so well that suture of the muscle bundles, end to end, was not necessary. The speci-

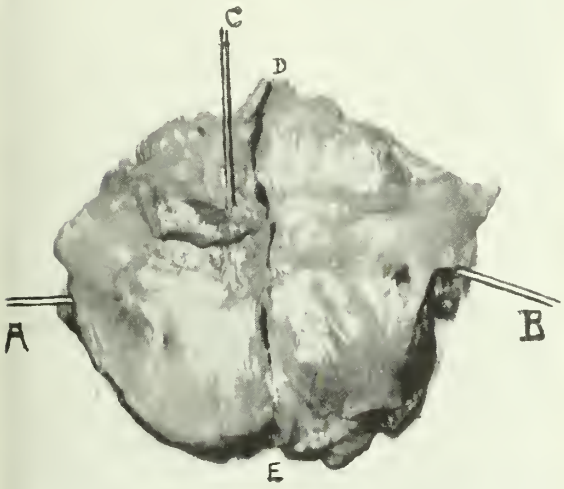

Fig. 1. Peritoneal surface specimen removed subcutaneously from anterior wall of Mrs. W., April 7, 1913. AB, line of incision in peritoneum. C, stab-wound through which drainage-tube passed. DE, median incision made at autopsy.

men shows such perfect healing of the muscle that the site of its division can scarcely be detected (Fig. 2, C). (One argument advanced against the transverse division of the recti is the difficulty of their suture. This specimen would tend to show that the suturing of the divided muscle is unnecessary, provided the ends are brought together by overlapping the aponeurotic tissues, which is especially easy of accomplishment in the upper abdomen where the rectus has a heavy sheath behind as well as in front.)

4. The muscles were divided at a higher level than was the aponeurosis. The facial flap was

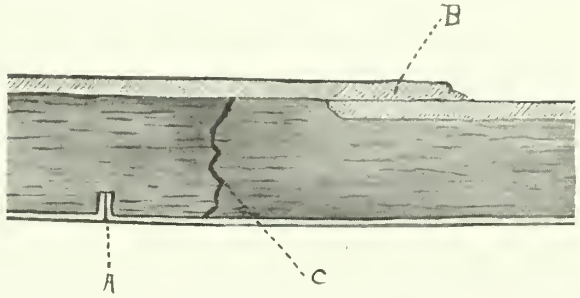

Fig. 2. Semidiagrammatic reproduction from specimen showing, A, ectropion of peritoneum. B, overlapping of aponeurosis. C, approximated ends of cut rectus muscle.

Note the difference in the height of the incisions through the muscle and through the fascia.

reflected upward, as in the Pannensteihl operation. Closure with the scar in the muscle higher than the scar in the aponeurosis seemed to give increased strength.

5. A tube introduced through a stab-wound in the upper flap for the purpose of drainage permitted primary healing of the whole incision and would undoubtedly have given a stronger scar with [illegible] chance for subsequent in[illegible]

THE
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TO THE MEDICAL PROFESSION OF NORTH DAKOTA

With this issue THE JOURNAL-LANCET renews its official relation with your Association, a relation broken off by the Association a year ago, but renewed, wholly without our solicitation, at the June meeting of the Association. We wish to express our appreciation of this manifestation of confidence in the desire and efforts of THE JOURNAL-LANCET to advance the interests of the profession of the entire Northwest, especially of our sister states of North and South Dakota. The profession of these three states has too much in common for the men of one state to remain in ignorance of what the men in the other states are doing. A good paper read in one state has just as much interest to the men in the other two states as to those in the author's state; and this is true of any effort for the advancement of the interests of the profession or of the public made by any man or any society in any one of the three states.

It is true that in the past the official relations of the various medical organizations in the three states have not been at all close, and yet many times it has been fortunate that such relations existed; but the personal relations of the medical men of the three states have often been intimate, cordial, and profitable.

Happily the nominal co-ordination of the activities of the men and the various societies of these states does not bring profit to one man or one society and loss to another. It is wholly mutual, and THE JOURNAL-LANCET wishes again to pledge itself to an unselfish effort to advance any good undertaking by the profession in any part of the Northwest; and the editor ventures to assert that the physicians of Minnesota heartily desire that the physicians of North Dakota and of South Dakota shall receive as much benefit from the publication of the paper as they themselves receive.

THE MINNEAPOLIS MEETING OF THE A. M. A.

It has been pretty thoroughly demonstrated that no mistake was made in asking the Association to meet in Minneapolis. The registration of physicians was a little more than 3,200, while the number of visitors accompanying them brought the total number of guests to the city up to about 5,000; and with but few minor exceptions there was no complaint as to the lodging and housing of the visitors. Unfortunately, one or two days were extremely warm, and the weather was the subject of comment but not in an unpleasant way, for most of the visitors realized that hot weather is present at this time of the year in most all parts of the country.

The meeting-places in the University buildings on the Campus were in most respects ideal, in that the rooms were fresh and clean, well ventilated, and had proper seating capacity, except for the Section on Surgery, and the only place in which the surgical section is not crowded is on one of the great piers in Atlantic City.

The Section Meetings were well attended, and the interest in the work seemed above the average. The programs wre not too long, and the majority of them contained many valuable contributions.

It has been said by critics that the American Medical Association is falling off in numbers, but, as a matter of record, with deaths, resignations, and members who are dropped for nonpayment of dues, the membership has increased more than 3,600 this year.

The House of Delegates had protracted meetings, in order to cover the program laid out for them. The House unanimously adopted the measure against fee-splitting. They also adopted a resolution commenting and encouraging clean advertising in the daily press, complimenting the *Evening Journal* of Minneapolis for its

course in this particular. They did many other things of interest which will be found in detail in the Journal of the Association. There was more or less politics and friction regarding the National Department of Health, but it was discussed sufficiently, and finally an amicable conclusion was reached. No large association through its house of delegates can meet without some opposition, but it is commendable to know that the American Medical Association has been able to settle its disputes on the right side without leaving any bitterness behind.

The meeting of the Association did much for the Northwest in that it explained to the people that the aims of the Association are, mainly, the prevention of disease through its public-health endeavors participated in by the doctor who belongs to directly or indirectly connected sections. It also aims to improve the methods of diagnosis and to further the treatment of disease.

There was less politics at this meeting in the selection of its president-elect. There was no campaigning or urging of individual members to influence their respective delegates for any one candidate.

Victor Vaughan, of Ann Arbor, Michigan, who has been much before the public, and who is so well known in the medical profession, was chosen president; Dr. W. P. Conaway, of Atlantic City, first vice-president; Dr. Frank C. Todd, of Minneapolis, second vice-president, and Dr. Lillian South, a woman physician of Bowling Green, Kentucky, third vice-president. Dr. Thos. McDavitt, of St. Paul, the Secretary of the Minnesota State Medical Association, was elected trustee. Many other men from the Northwest were complimented by a chairmanship or secretaryship.

The entertainment of the Association was under the direction of Dr. F. C. Todd, who appointed various committees and various chairmen of sub-committees, who in turn selected their associates. It would hardly seem immodest to say that all of the men who were members of the committees have put in a tremendous amount of time, energy, and work, and the result was that the meeting was called one of the most successful in the history of the Association.

The women of Minneapolis, comprising a large committee and divided into sub-committees, certainly did honor to the city, and the women who came as guests were entertained in an orderly and delightful manner without overdoing the entertainment and without tiring out the guests.

The Campus was alive with visitors for luncheon each day, and a large proportion of the men who were in attendance enjoyed the out-of-doors ice-tea festival.

No better advertisement could have been given to the University than to have the American Medical Association meet on its campus, and it behooves the University teachers now to carry out the expectations and obligations which are imposed upon them, in order that the University may stand as a representative institution.

The central office of the Association at the Armory Building on the Campus was an exceedingly busy place. The registration windows were crowded with applicants and those who wished to register. The editors and clerks within the wire cage were busy many hours each day. The commercial exhibits and the instrument and book displays which filled the rest of the armory were extremely well arranged and very interesting. The scientific exhibit at the Institution of Anatomy was one of the best things on the Campus. The wonderfully preserved specimens from the University and private laboratories, models and charts for teaching, practical models and chart displays from the Minnesota State Board of Health and from the other Boards of Health were equally interesting. Marvelous x-ray plates showed what a tremendous advance has been made in that direction. The microscopic specimens and the living hook-worm and pictures of hook-worm and pellagra victims by Dr. South, drew continuous crowds, and the lectures which were given based upon these laboratory displays were highly instructive.

The President's reception at the National Guard Armory was a big, hot, palpitating, musical effort, and from the point of display it was exceedingly attractive. But of all the entertainments that given by the St. Paul physicians was the best, and many visitors say it ranks as the best smoker ever given at a meeting of the Association. The magnificent auditorium in its attractive dress was a great sight. The refreshments, served for over two hours by the Dutch girls, was just suited to the occasion. The vaudeville entertainment, by good professional and amateur talent, was highly pleasing to the city and the country doctor, and to both men and women. And the opportunity for pleasant chats with old and new friends, made the evening, quite up to midnight, really delightful; and it was the common talk that the St. Paul men know how to entertain.

The reports of the sectional meetings by our local papers were admirable and were unusually complete. *The Tribune* made quite a new departure. It engaged local medical men to report the work done in every section, and their reports were uniformly good, giving both the layman and professional man an idea of what each section had before it each day.

PUBLIC HEALTH SUNDAY

The American Medical Association two years ago inaugurated the custom of supplying the pulpits in the various cities in which the Association meets with doctors who speak on public health and sanitary problems. This plan worked out so well in Los Angeles two years ago that it was continued at Atlantic City one year ago; and this year in Minneapolis and St. Paul about 120 churches were supplied with medical speakers, and from the very earnest co-operation on the part of the clergy Public Health Sunday has become an assured success. It is one of the best means of education that can be devised to bring the people, who are more or less indifferent to public health problems, into closer touch with the doctor and his work and incidentally to prove that medical men are broader in their religious views than is commonly supposed, and in many instances in the Twin Cities the doctor was able to speak in practically the same vein as the preacher.

It is impossible to estimate the amount of good that public health talks carry into the home. It is not the aim of the Association to supply only the larger churches, but the fundamental aim is to reach the suburban people and people of the different churches in the congested districts away from the down-town church. It is to be hoped that the custom will prevail each year.

One or two rather amusing incidents occurred in Minneapolis which are reported by the doctor-preachers. In one of the popular churches in Minneapolis the pastor announced, in introducing the doctor, that one of the aims of the church at its services was to make its congregation comfortable. The ladies were invited to remove their hats, and the men were told, as the day was hot and to save them from discomfort, that they might remove their coats, and in the presence of the dignified Southern philosopher who was to speak, the minister said: "Now, gentlemen, go to it," and it was done—by a limited number.

Another incident was that of a popular doctor speaker who was assigned to a Congregational church, but between the assignment and the day of the meeting the church had changed hands and the audience was composed of a divine healing cult. When the doctor announced himself he was told that there must be some mistake as they had not requested the service of the doctor. He was not to be put off, however, and insisted that he was assigned to that place, and there he would speak. When, in reply, they told him that they did not believe in doctors but believed in divine healing, the doctor very promptly announced that they were just the people he was looking for. He talked with them for one-half hour and there was nothing discourteous, nothing offensive in his medical sermon, and after the service was over he was congratulated by the congregation. He was not only a doctor but a diplomat.

THE MINNEAPOLIS GENERAL ELECTRIC COMPANY'S GENEROSITY

A number of physicians in Minneapolis have received the following courteous letter from the Minneapolis General Electric Company:

> I beg to inform you that during the remainder of the summer we wish to place without charge electric fan service at the disposal of every sick person who (or whose family) is unable to pay for the fan and service, and whose sick-room can be reached from our present distributing lines.
>
> We ask only that you certify in writing to the desirability of fan service from a medical standpoint and to the financial inability of the patient to secure the same; also that you notify us when the necessity of the service has ceased.
>
> If the house is not wired we will run service wires and install sufficient interior writing to operate the fans, loaning the latter as long as may be required in your judgment.
>
> Assuring you of our desire to co-operate with you, we are, Yours truly,
>
> The Minneapolis General Electric Co.,
> By R. F. Pack, General Manager.

This is in line with other corporations who frequently offer to do deeds of charity and kindness for the sick just as the Cedar Lake Ice Company not infrequently offers to furnish poor people with ice when unable to pay for service of this kind.

WHAT NORTH DAKOTA DOCTORS ARE DOING

In another column will be found the presidential address of Dr. McCannell before the North Dakota State Medical Association, in which he reviews the work of the Association for the past

year, and especially the legislation obtained by the medical men of the state.

Every physician in the Northwest should be interested in all the problems the North Dakota doctors are attempting to solve, and we may all take courage from their success in not a few lines.

Dr. McCannel's six recommendations were formally adopted by the Association.

BOOK NOTICES

Clinical Laboratory Methods. A Manual of Technic and Morphology, designed for the use of Students and Practitioners of Medicine. By Roger Sylvester Morris, A. B., M. D., Associate Professor of Medicine in Washington University, St. Louis. Cloth, price, $3.00; pp. 343, with 46 illustrations, New York and London: D. Appleton & Company, 1913.

As Dr. Morris points out in his preface, the importance of the laboratory in aiding in diagnosis is becoming more and more evident. His book has been published with the idea of furnishing to the practitioner and student a concise work where can be easily found the laboratory methods now in vogue.

The book is divided into six chapters, each chapter dealing with the matter falling under one of the following heads: urine, gastric juice, feces, sputum, blood, and puncture fluids.

The ground has been well but briefly covered, only those matters being described which are recognized as the most satisfactory. The formulæ for all necessary reagents are given, and the sources of error are pointed out. No attempt is made to discuss the significance of the findings, for the work is essentially one of laboratory technic, but it is very readable and is, very wisely, printed in good-sized type. Unfortunately, two or three of the illustrations are rather poorly executed.

For the practitioner who wishes a handy reference book in laboratory technic, without the confusing multiplicity of methods described in many more complete works, this volume can be recommended.

—Morrison.

The Care of the Skin and Hair. By William Allen Pusey, A. M., M. D., Professor of Dermatology in the University of Illinois. New York and London: D. Appleton & Co., 1913.

In this small volume of 175 pages, the author presents in a very readable, clear, and concise manner those things regarding the care of the skin and hair which everyone should know. It deals especially with the hygiene, and assiduously avoids the fostering of the mischievous habit of self-medication.

It should be of great service, and no physician need hesitate about recommending it to his patients.

—Crume

International Clinics, a quarterly. Published by J. B. Lippincott Co., Philadelphia. Price, $2.00.

This valuable quarterly (Vol. III, 22nd Series) maintains its high quality and careful discrimination in the selection of material.

The article by Reilly, "Deceptive Onset in Lobar Pneumonia," is especially timely and suggestive. Porter's article, "Cancer of the Hollow Viscera of the Abdomen, with special reference to Diagnosis," is likely to aid in the early diagnosis of cancer in this region. There are many other articles of merit that will prove helpful to the busy man.

—Bradley.

Principles and Practice of Obstetrics. By Joseph B. De Lee, A.M., M.D. Professor of Obstetrics at the Northwestern University Medical School. Large octavo of 1000 pages, with 913 illustrations, 150 of them in colors. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, $8.00 net; half morocco, $9.50.

This text-book is the culmination of years of the author's experience in teaching obstetrics. It is profusely illustrated with beautifully executed and well-selected drawings and photographs. The text is well written and the meaning is clearly expressed. A wealth of information is contained within its nearly 1,100 pages. It should prove to be a very valuable book for the undergraduate with whose needs the author is very familiar. It should furnish the practitioner easy access to the sane ideas of the writer, whose judgment is based upon experience in handling a wealth of clinical material.

The book has a very complete index, which adds to its value as a work for ready reference. —Adair.

Skin-Grafting. For Students and General Practitioners. By Leonard Freeman, B. S., M. A., M. D., Professor of Surgery in the Medical Department of the University of Colorado; Surgeon to St. Joseph's Hospital, Etc. 24 illustrations. St. Louis: C. V. Mosby Co., 1912. Price, $1.50.

This excellent monograph gives, in 125 very lucid and practical pages, all that can be desired on the subject. The author gives in detail the different methods of skin-grafting, from their preparation to their after-treatment. Histology and pathology are not neglected.

This admirable book ends with a chapter on a brief comparison of the different methods of skin-grafting.

—Robitshek.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, Esq., member of the Ohio and New York Bars; Contributing Editor to many Legal Publications. Octavo, 325 pages. Cloth, $3.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

A physician who attempts to be his own lawyer is probably as badly off as the lawyer who plays the part of his own physician, but there are many times when a knowledge of the general principles of the law as it affects him is of value to the physician and, to this degree, Culbertson's book is of distinct value to medical men. It deals with the rights, duties and liabilities of the physician toward the public as settled by law and also the legal relation of the regular profession to practitioners of the many schools of healing now in vogue, as well as the status of such healers in the eye of the law. The book is well written, is full of interesting ma-

terial, and to show the wide range of topics covered, one needs only to quote the chapter headings.

Chapter I, Introductory; Chapter II, Definitions; Chapter III, Who May Practice Medicine and Surgery; Chapter IV, Relation of Physician to Patient; Chapter V, Compensation; Chapter VI, Malpractice or Negligence; Chapter VII, Criminal Liability of Physicians and Surgeons; Chapter VIII, Exemptions of Physicians and Surgeons; Chapter IX, Physicians and Surgeons as Witnesses; Chapter X, Right to Protect Professional Reputation; Chapter XI, Validity of Contracting Restricting Exercise of Profession; Chapter XII, Wills.

—Hamilton.

Manual of Chemistry. By W. Simon, Ph. D., M. D., and Daniel Base, Ph. D. Philadelphia and New York: Lea & Febiger.

This edition of this well-known manual is definitely enlarged, and additions have been made in several subjects, especially in the newer work in physical chemistry.

A table of international atomic weights has been added and the attempt has been made to render the book of the greatest practical value. It will undoubtedly continue to fill its old place of favor with medical students.

—Sedgwick

NEWS ITEMS

Dr. E. W. McEssy, of New Rockford, N. D., has moved to Minot.

Dr. A. H. Parmelee, of Minneapolis, has moved to Oak Park, Ill.

Dr. F. D. Smith has moved from Reeder, N. D., to Hillsboro, N. D.

St. Barnabas Hositpal, Minneapolis, graduated a class of six nurses last month.

Dr. Blonge, of Elmore, was fined $200 and costs last month for practicing without a license.

The training-school of Asbury Hospital of Minneapolis graduated fifteen nurses last month.

Dr. R. J. Sewall is erecting a hospital building at Crosby, and hopes to complete it by September 1st.

The *Standard*, of Hecla, S. D., says that prosperous new town offers a fine opening to a good physician.

Dr. W. T. Flynn, who has been practicing a couple of years at Kilkenny, has moved to Everett, Wash.

Dr. A. B. Newman, of Carson, N. D., died last month from a dose of poison taken when it was believed he was insane.

Dr. Theo. Satersmoen, State University, 1910, has located at Ada, having purchased the practice of Dr. Biorn, of that place.

Dr. H. G. Bickford, of Minnesota Lake, was married last month to Miss Anna Isabell Farquhar McRae, of the same place.

Dr. J. R. Peterson, who moved from Willmar to Minneapolis last month, has offices in the St. Anthony Falls Bank Building.

An architect is at work upon the plans of a $75,000 hospital building to be erected by the St. Francis Sisters at Minot, N. D.

Dr. C. Eugene Riggs, of St. Paul, read a paper last month before the Manitoba Medical Association, which met at Brandon, Man.

Dr. O. W. Fisher, of Watkins, has drawn four indictments from the grand jury of his county because he practices without a license.

Dr. W. G. Workman, who has been an interne in the State University Hositpal for the past year, has taken up his father's work in Tracy.

Dr. W. H. Parker, of Minneapolis, committed suicide on June 12th, as a result of poor health. Dr. Parker formerly practiced at Fairmont.

Dr. Florence Ridgeway, of Minneapolis, graduated from the law school of the State University last month, but she will practice medicine, and not law.

The South Dakota State Board of Medical Examiners meets at Pierre on July 8th to conduct the examination of candidates for licenses to practice in that state.

Dr. A. P. Leary has just opened a hospital at Big Timber, Montana. The new building is on the bungalow style, 40x52 in size, with a front porch and sun-parlor.

Dr. W. P. Robertson has joined his brother in practice at Litchfield. The former graduated in Detroit, Mich., last year, and has spent a year in a Detroit Hospital.

Dr. C. A. Lester, of Alexandria, will give up the practice of medicine on account of the state of his health. He will move to Winona and engage in the insurance business.

Dr. G. H. Caldwell, of the medical faculty of the University of North Dakota, has resigned his position and will take up eye, ear, nose, and throat work in Twin Falls, Idaho.

Dr. C. H. Mayo delivered an address before the Minnesota State Dental Association last month. Dr. Mayo is making special study of the diseases whose source is in the teeth.

Dr. A. J. Cox, of Tyler, obtained a verdict of $10,000 against a citizen of Tyler whom he sued for slander. The statement was made that Dr. Cox used the mails for criminal purposes.

The following are new internes at the City and County Hospital of St. Paul: Dr. W. P. Freligh, W. C. Brodie, Kenneth Phelps, Arthur Vesse, T. C. Davis, L. I. Bardeux, and H. X. Quinnal.

The General Electric Company of Minneapolis has generously offered to install and run free of charge an electric fan wherever needed by the sick poor of the city. This includes wiring the house when necessary.

Dr. William J. Mayo, of Rochester, is to be made a fellow of the Royal College of Surgeons of England. He will go to London the latter part of this month to receive the degree conferring this distinguished honor.

Dr. H. W. Spencer, of Montrose, S. D., has moved to Sioux Falls, and Dr. E. E. Gage, of the same place, is in Chicago doing post-graduate work and will locate in Sioux Falls. The former had practiced fifteen years and the latter ten years in Montrose.

The Mayo Clinic was visited by more physicians last month than ever before in its history. One of the special trains from the east coming to the A. M. A. meeting was held several hours at Rochester to enable the physicians to visit the hospital and attend the Club.

South Dakota has taken steps to enforce, and rigidly, her new law concerning vital statistics. The physicians of the state have had ample warning of the penalty attached to failure to make proper returns, and the necessity of prosecution would be discreditable to any doctor.

Dr. George Freeman, first assistant of the late Dr. Tomlinson at the state inebriate hospital at Willmar, has been appointed head of the institution. The capacity of the hospital is already insufficient for the number of applicants seeking admission, and might well be increased tenfold.

The summer school for graduate students of the College of Medicine of the University of Minnesota opened its first session on June 24th with a fair attendance. It is believed that this summer school will become very useful and will have a larger attendance as its work becomes known.

The dedication services of the new Loretto Hospital at New Ulm last month were very impressive. The attendance from the city of New Ulm and outside villages was large. Speeches were made by Dr. L. A. Fritchie, mayor of New Ulm, Dr. O. C. Strickler, Archbishop Ireland, and others.

"Dr." John Till, of New Richmond, Wis., won the suit brought against him in St. Paul last month. A victim of his plaster treatment, Frederick Stein, sued him for $60,000 on account of suffering caused by the Till treatment, but was unable to convince the jury that the Till plaster is not a good diet.

Infant welfare work has been carried on in Duluth with marked success, but its future promises an example of encouragement to all other cities. It is proposed to erect a hosiptal for children at an expenditure of $150,000, and to make this the center of infant welfare work on a scale never before undertaken. This is admirable.

Dr. George F. Ward, a recent graduate of Syracuse, N. Y., has become associated with Dr. C. T. Granger, of Rochester. Dr. Ward's father is a medical missionary at Delhi, India, and he will become a medical missionary. A Rochester paper speaks of the father as a resident of "Delphi, India, a famous physician of the East."

Dr. Elias Potter Lyon, of the University of St. Louis, has been appointed Dean of College of Medicine of the University of Minnesota. Dr. Lyon brings to his new undertaking the reputation of success in similar work. He comes to a field of great possibilities, and he has the good will and best wishes for large success from the entire profession of the Northwest.

Dr. Frank C. Todd, of Minneapolis, was made a vice-president of the American Medical Association in recognition of his efficient services as chairman of the executive committee in charge of the Minneapolis meeting of the Association, and Dr. Thos. McDavitt, of St. Paul, was elected a trustee. A number of northwestern men were elected officers in the various sections.

SPECIAL PRACTICE FOR SALE

A $3,000 a year eye and ear practice in a good Minnesota city of 20,000 population will be sold to the one who buys my stock of lenses and frames. Will remain with a young physician long enough to teach him optics. Address S. W., care of this office.

OFFICE FOR RENT

In Pearce-Walton Building, Minneapolis, 9th and Nicollet, corner suite of two rooms, toilet and 6x8 ft. storage closet. These are large, pleasant front rooms on 2d floor with large plate-glass windows in both rooms. Arranged specially for doctor's office. Rent reasonable. Plymouth Investment Co., 827½ Nicollet Ave., Minneapolis.

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A doctor and dentist wants a good man to share waiting-room. Can get one or two private rooms. Inquire 403 Syndicate Building, 519 Nicollet Ave., Minneapolis.

FOR SALE

One Little Wonder Air-Pump, 1 No. 2 Globe Air-Tank, 1 No. 59 Globe Multinebulizer, 1 Phillips Office-Table, 1 Combination Writing-Desk and Book-Case, 1 Pynchon Adjustable Chair, 2 Irrigators, 1 Phillips Century Controller, 1 Urinalysis Cabinet. Will be sold cheap. 403 Syndicate Building, 519 Nicollet Ave., Minneapolis.

FOR SALE

An X-ray machine: Cost $1,000; will sell for $250. A safe: 26x30x36; cost about $125; will sell for $45. An apparatus for administering hot air; will sell for $8. An oak roll-top desk: large size, cost $65; will sell for $35. An operating-chair; will sell for $25.

These things were the property of the late Dr. T. M. McLean, of Fergus Falls, Minn., and must be sold at once. Address Mary H. M. McLean, Fergus Falls, Minn.

PHYSICIAN WANTED

Norwegian physician wanted. For particulars address Chas. N. Taber, Druggist, Reynolds, N. D.

PRACTICE WANTED

I desire to purchase a practice in Minnesota or North or South Dakota which must pay over $3,500. Will pay a fair price in cash for the same. Give full particulars. Address C. C., care of this office.

SUBSTITUTE WORK WANTED

Will substitute for some busy physician or surgeon for a few months in Minnesota or North or South Dakota. Am an all around good physician and surgeon with best of recommendations. Address C. O., care of this office.

INCUBATOR FOR SALE

One bacteriological incubator. Copper, asbestos covered, enameled water-jacket, with thermo-regulator and safety-lamp complete. Inside dimensions 9x9x12 inches, in good condition. Cost $45, used but little; good as new. Will sell for $20. Call upon or write Syndicate Bldg. Pharmacy, Minneapolis.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., OF THE JOURNAL-LANCET, APRIL 1, 1913.

Published semi-monthly at Minneapolis, required by the Act of August 24, 1912.

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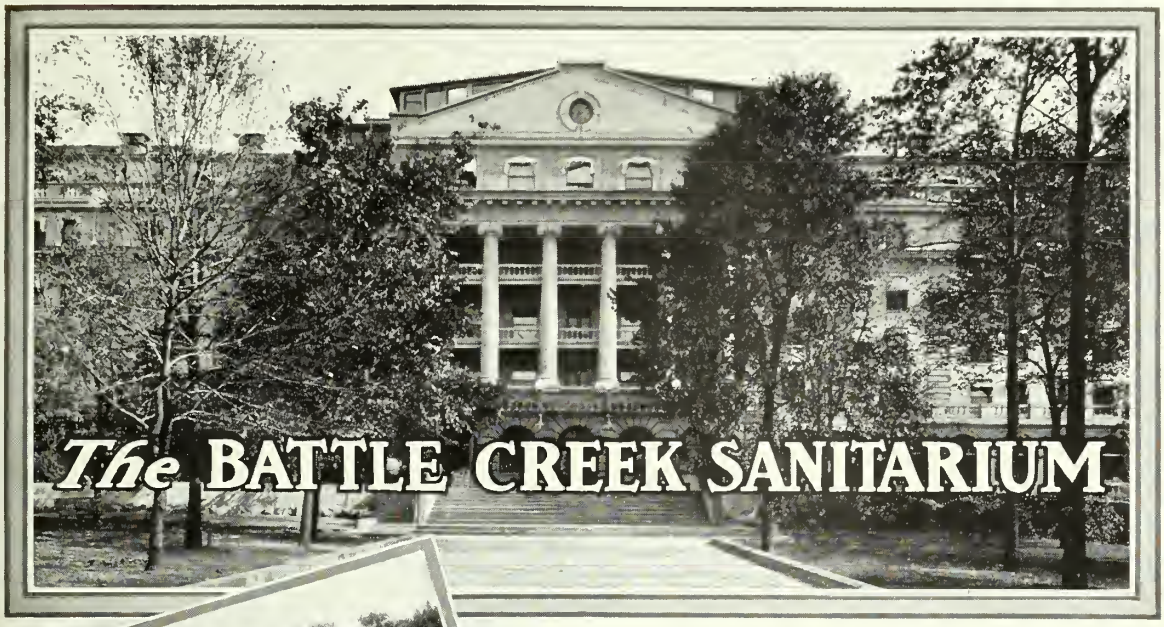
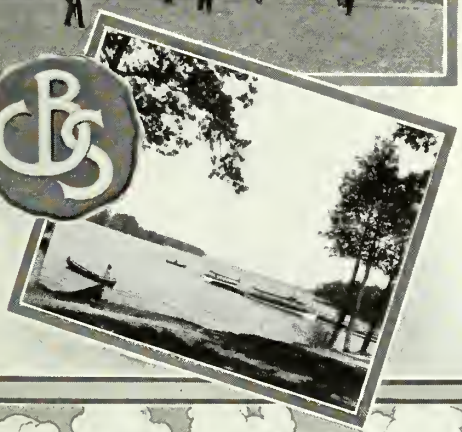
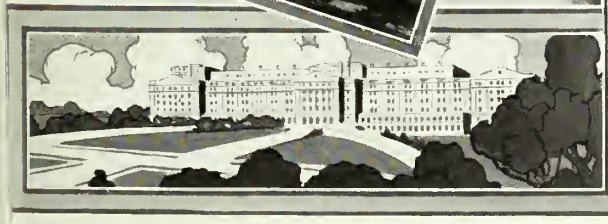
W. L. Klein, Publisher.

Sworn to and subscribed before me this twenty-fifth day of June, 1913.

P. M. Woodman.







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PUBLISHER'S DEPARTMENT

THE JOURNAL-LANCET ADVERTISERS AT THE A. M. A. MEETING

The A. M. A. recognizes the value of and the interest in the commercial and scientific exhibits, and this year the Armory building furnished an ideal exhibition hall. Compact and yet spacious, with good light and air, the hall was visited by a very large number of men to see the apparatus, the books, and the products of the laboratory, exhibited and demonstrated by experts in their respective lines.

The attendants were always courteous, never urging the visitor to buy, but ever anxious to convey information; and many physicians left the exhibits with a feeling that the exhibit hall furnished an important part of the work of the annual meeting of the Association.

The Frank S. Betz Company had an unusually large and attractive exhibit of surgical and hospital apparatus, including electrical apparatus, furniture, and instruments, of both domestic and foreign manufacture.

The Wilmot-Castle Co., of Rochester, N. Y., showed a full line of sterilizing apparatus for the office and the hospital. Perfection of design and workmanship marks every product of this house, and their exhibit was an exceedingly interesting one.

The house of Fairchild Bros. & Foster, of New York, as our readers well know, has confined its attention for a generation or more to the disgestive tract and their products have been of the highest scientific character. Their exhibit of digestants and therapeutic foods was an interesting one, well worth a visit.

The Horlick Malted Milk Co. gives the most attracting of the exhibits. In the form of a drink or an ice cream, H. M. M. has always been an essential feature of exhibit hall of the A. M. A. And H. M. M. is equally delicious and nourishing as a child's or an invalid's food.

The Medical Protective Company, of Fort Wayne, distributed its literature and told the story of its generous policy, giving the physician all that he can desire in the line of insurance against accidents and consequent suits. The company's policy tells the story in unmistakable language.

The Meyrowitz Co., of New York and a score of other cities, showed a beautiful line of optical instruments, many of them of the highest scientific value, such, for instance, as an instrument for measuring the amount of protrusion of the eyeball caused by goiter, hemorrhage, etc. Skill in design, excellence of workmanship, and reasonable in prices, characterize this house.

The H. K. Mulford Company's exhibit was purely scientific, and all the more instructive and valuable for that. It was an exhibit of bacterins, serums and vaccines, which are now available to every physician in a form that should make their administration much more common that it really is at the present time. Such exhibits have a large educational value, and tend to bring the scientific manufacturer into close touch with all physicians.

The National Pathological Laboratory of Chicago demonstrated the Wassermann test and explained the latest methods of making scientific medical analysis. The exhibit may well be ranked as one of the most important of the year, inasmuch as it showed that the scientific laboratory is now available to every physician, and that the man practicing in the remotest backwoods section may call upon the best laboratory men in the land for help in diagnosis, and do so at a cost that does not bar the poorest patient.

Messrs Noyes Bros. & Cutler, of St. Paul, always make an attractive exhibit for they sell everything needed in a doctor's office or a hospital, whether books, instruments, apparatus or what not. They are the exclusive northwestern agents of many lines of apparatus and supplies for medical men.. Among them may be mentioned the Snook-Rentgen X-Ray Outfit, which ends x-ray troubles, materialy reduces the expense for tubes, and operates on all commercial electric currents. The firm of Noyes Bros. & Cutler also enjoys an enviable reputation for honorable dealing, which is always an assurance to their customers that whatever one buys of them he buys at a right price and, still more important, he can get from them, for the asking, a reliable opinion of what is worth buying.

The Scheidel-Western X-Ray Coil Company, of Chicago, demonstrated their interrupterless transformer and other x-ray apparatus. This company claims to be the largest exclusive manufacturers of x-ray apparatus in the world. They unquestionably make a fine line of apparatus, and our readers should have their complete catalog.

SOME OTHER EXHIBITORS

The W. D. Allison Company, of Indianapolis, Ind., showed their physicians' tables and office furniture, most of which is well known to all medical men, but the company always has something attractive to offer, and their exhibit was one of the features of the Armory display.

The Ambulatory Pneumatic Splint Manufacturing Company, of Chicago, showed a splint that, in novelty and perfection, is unexcelled; and both the physicians and surgeons who examined it expressed surprise at its efficiency. Their splints should be in the office of every surgeon and of every general practitioner, the latter often being in especial need of such an effective splint.

The Arlington Chemical Company, of Yonkers, N. Y., exhibited a number of their products, and their Chicago representative, Dr. Werker, stood ready to give reliable scientific data to visiting physicians. The Code of Charaka, 100 A. D., was an interesting souvenir given to visitors.

The Borcherdt Malt Extract Co., of Chicago, exhibited a malt extract which the company claims is much superior to the extract generally made by brewers, who give little attention to the needs of the sick and the invalid.

F. A. Hardy & Co., of Chicago, exhibited a beautiful line of high-grade surgical instruments and appliances. This house makes a grade of goods not excelled by any other manufacturer, and surgeons who have dealt with them for many years think that no other concern can supply their wants.

The Life Saving Devices Co., of Chicago, had an unusually attractive display which attracted much attention. If we mistake not, they make pulmotors for both children and adults, and the number of lives saved daily by these new devices make a strong appeal upon all public institutions in living-saving work to possess them. Every village and every hospital in the land should have a pulmotor that no life which this instrument would save should be thrown away. We early recommend our readers to get the descriptive matter of the devices of this company.

The Mellin's Food Co., of Boston, made a display which was of more than commercial value. Dr. Goodale, of the Boston office, was in charge and was prepared to show that an artificial infant-food can be made on modern scientific infant-feeding lines; and he presented charts and statistics to show that next to breast-milk Mellin's food is the best combination of the elements in a perfect infant-food yet devised.

The Wm. Meyer Co., of Chicago, made one of the largest and most complete exhibits in the hall, and it attracted very much attention. They showed electrical apparatus of apparent endless variety, and much of it at very moderate prices.

Messrs V. Mueller & Co., of Chicago, had a line of instruments that seemed to have upon them the stamp of originality and perfection of make. Mr. Mueller himself was present, and some of his instruments seemed to greatly please and astonish the visitors, especially those for the direct examination of the stomach and bladder. This was probably the most unique exhibit in the hall.

Sischo & Beard, of St. Paul, showed a fine line of optical instruments for the oculist and the general practitioner.

The Victor Electric Co., of Chicago, had a very large display and a very complete line of electrical appliances. They are probably the largest house in their line in the west, and all physicians should have their catalog.

The Welch Grape Juice Co. was present with a pleasant and cooling drink for all the passers-by, but their exhibit was made to demonstrate that the oils (castor, cod-liver, etc.) can be taken in grape juice without a particle of the taste of the oil; and this is often a very important point, for some patients will not long take oil of any kind.

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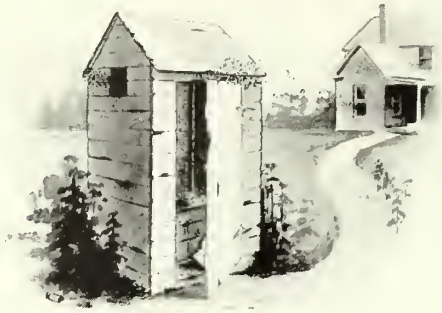

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THE
JOURNAL-LANCET

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North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

VOL. XXXIII | MINNEAPOLIS, JULY 15, 1913 | No. 14

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

THIRTY-SECOND ANNUAL MEETING
1913

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MEMBER OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION
WILLIAM R. BALL, M. D.....Mitchell

Alternate
MERLIN C. JOHNSTON, M. D.....Aberdeen

Proceedings of the House of Delegates

FIRST SESSION, TUESDAY, MAY 27

The House of Delegates met at 3 P. M., May 27, 1913, in the Law Building of the University, at Vermillion, and was called to order by the President, Dr. C. E. McCauley, of Aberdeen.

The Secretary called the roll and announced the following present, constituting a quorum: Dr. J. D. Whiteside, Aberdeen; Dr. C. O. Olson, Groton; Dr. H. H. Frudenfeld, Madison; Dr. I. M. Burnside, Highmore; Dr. E. W. Jones, Mt. Vernon; Dr. G. E. Bliss, Valley Springs; Dr. F. A. Spafford, Flandreau; Dr. James Roane, Yankton; the President and the Secretary.

The Secretary-Treasurer presented his report, as follows:

REPORT OF THE SECRETARY-TREASURER

TO THE PRESIDENT AND HOUSE OF DELEGATES OF THE SOUTH DAKOTA MEDICAL ASSOCIATION: At the last annual meeting your Secretary was instructed to obtain a biography of every member of the Association. This has been undertaken, and to date a majority of the members have filled in the blanks sent them, and the data have been put on cards for permanent record and filed in a cabinet procured for that purpose.

You further instructed the Secretary to establish a bureau for the furnishing of substitutes for physicians. This has not met with success, as it was impossible to find physicians to fill the positions. In one case only I was able to get a locum tenens.

Dr. James Roane, of Yankton, acting under instruc-

tions of this House to organize a society west of the Missouri, has succeeded in doing so, and that organization will ask this body for a charter at this meeting.

Last winter your President and myself, with the advice of a number of members of the Association, had a board of health bill drafted and presented to the Legislature for action.

This bill greatly increased the powers of the board, combined the State Examining Board and State Board of Health, increased the appropriation, and put the appointment of the officers into the hands of the State Medical Association.

We were not successful in getting the bill through the Legislature as originally drafted, but we got the most of it. His Honor, the Governor, soon put the shears to the paragraph relating to the appointment of officers, but we got a good bill, and one almost equal to that of Minnesota or Kentucky.

Your President, Dr. McCauley, deserves honorable mention for the success of this bill. He made three trips to the capitol in its interest.

The membership of the Association is about the same as a year ago. The district societies are in a healthy condition, but do not show much activity.

The terms of office of Councilors in Districts Nos. 1, 7 and 4 and of the Secretary-Treasurer expire at this meeting, and it will be necessary to elect their successors.

R. D. Alway.

The President: Reports of standing committees are in order.

Dr. Roane: I would like to make a report at this time, if in order.

The President: Proceed.

Dr. Roane: In pursuance of the request of this House of Delegates, last fall I went into the Rosebud District and met a number of physicians of that section and organized a district society. The gentlemen on the other side of the river were very enthusiastic, and were very anxious to become organized into a separate district, because they lived so far from the meeting-place of the Eighth District that it was practically impossible for them ever to attend our meetings. We had some men from that side of the river who were members of our district society, but it was rare for us to have them in attendance. They paid their dues, but rarely attended meetings. They met and organized and adopted a set of by-laws in conformity with the by-laws of the State Association, and they were to have had a delegate here at this time. Dr. Kenaston, of Bonesteel, was elected as a delegate to the State Association, and I have been advised it was his intention to be here. I have received information from that section in which I am told times have been hard over there, and several members who intended to come here finally were unable to leave home.

I will state that the men over there are enthusiastic and a very fine set of men, and I heartily indorse their petition to be separated into a separate district, and I hope the House of Delegates will grant them a charter. It has been hard for them because of the fact that they live in a new country, but I believe this Association will make no mistake in granting them a charter.

If there is any question any of the members would like to ask, I would be glad to answer it.

The Secretary: You think there is no doubt they will maintain an organization?

Dr. Roane: None at all.

The President: How many are there?

Dr. Roane: There are in the neighborhood of fifteen or twenty who are in the society, and they are all good men.

The President: I presume Dr. Kenaston will be here, and he will outline that district geographically.

Dr. Roane: He will give accurate information in regard to it.

I suggested they call it the Rosebud District Medical Society, and they have agreed to give it that name.

If the House wishes to obtain further information before they take definite action, I would suggest that such action be deferred until Dr. Kenaston, of Bonesteel, is present, who can enlighten us as to the situation over there. I am heartily in favor of giving them a chance. They ought to belong to the State Association and also to the American Medical Association.

The Secretary: I would suggest or move that action on this matter be deferred until tomorrow or until Dr. Kenaston is present.

Motion was seconded and carried.

The President: Is there any report from the Legislative Committee? Dr. Finnerud, of Watertown, is chairman of this committee, but he is not present. Dr. Spafford, you are a member of that committee; have you any report to make?

Dr. Spafford: I did not know I was a member of the committee until yesterday. I think Dr. Finnerud, who is a member of the Legislature, can make an extended report.

The Secretary: I move you, Mr. President, that the chair appoint the following committees: Committee on Nominations, Committee on Resolutions, and Committee on Necrology.

Motion was seconded and carried.

The President: I will announce these committees later.

Is there anything else to come before the House of Delegates at this time?

Dr. Cruickshank: We do not want to interfere with the program. This evening, at eight o'clock, in Masonic Hall, there will be a meeting of the Knights Templar, and if any of you are interested and would like to attend, you will be cordially welcome.

The President then announced the following committees:

COMMITTEE ON NOMINATIONS

J. B. Vaughn
D. L. Scanlon
E. W. Jones
James Roane
F. A. Spafford
C. O. Olson.
I. M. Burnside.

COMMITTEE ON NECROLOGY

S. M. Hohf, Chairman
Fred Treon
W. R. Ball.

COMMITTEE ON RESOLUTIONS

E. Klaveness, Chairman
B. S. Bobb
H. H. Frudenfeldt.

On motion, the House of Delegates adjourned to meet Thursday at 9 A. M.

SECOND SESSION, THURSDAY, MAY 29TH

The House of Delegates met at 9:30 A. M., and was called to order by the President, the following members being present: Dr. J. D. Whiteside, Aberdeen; Dr. C. O. Olson, Groton; Dr. I. M. Burnside, Highmore; Dr. J. D. Jones, Mt. Vernon; Dr. E. Klaveness, Sioux Falls; Dr. G. E. Bliss, Valley Springs; Dr. G. S. Adams, Yankton; Dr. J. L. Duguid, Springfield; Dr. J. B. Vaughn, Castlewood; Dr. H. T. Kenney, Pierre; Dr. F. A. Spafford, Flandreau; the President, and the Secretary.

The report of the Committee on Resolutions was called for, but the committee was not ready to report.

Dr. J. V. Vaughn, Chairman, presented the following report of the Committee on Nominations:

President, Dr. F. A. Spafford, Flandreau, G. S. Adams, Yankton, and E. W. Jones, Mt. Vernon; First Vice-President, Dr. Fred Treon, Chamberlin; Second Vice-President, Dr. J. B. Vaughn, Castlewood; Secretary-Treasurer, Dr. R. D. Alway, Aberdeen; Councilors, Dr. H. T. Kenney, Pierre; Dr. T. J. Billion, Sioux Falls, and Dr. William Edwards, Bowdle.

Dr. Vaughn moved that the report be adopted. Motion was seconded and carried.

The President announced that the election of officers was in order. Drs. Adams and Jones declined the nomination for president. Dr. Klaveness moved, seconded by Dr. Kenney, that the Secretary cast the ballot of the House for Dr. Spafford for President of the Association. Motion carried. Dr. Alway then cast a ballot for Dr. Spafford, President.

Moved by Dr. Jones, seconded by Dr. Whiteside, that the Secretary cast the ballot of the House for Dr. Treon for First Vice-President. Motion carried.

The Secretary announced that he cast the ballot of the House for Dr. Treon for First Vice-President.

Moved by Dr. Kenney, seconded by Dr. Adams, that the Secretary be instructed to cast the ballot of the House for Dr. Vaughn for Second Vice-President. Motion prevailed. The Secretary did so.

Moved by Dr. Jones, seconded by Dr. Duguid, that the President be instructed to cast the ballot of the House for Dr. Alway for Secretary-Treasurer. Motion prevailed. The President announced that he cast the ballot of the House for Dr. Alway for Secretary-Treasurer.

Moved by Dr. Alway, seconded by Dr. Spafford, that the Secretary be instructed to cast the ballot of the House for Dr. Edwards of Bowdle as Councilor of the First District. Motion prevailed.

Moved by Dr. Vaughn, seconded by Dr. Olson, that the Secretary be instructed to cast the ballot of the House for Dr. Kenney, of Pierre, for Councilor for the Fourth District. Motion prevailed.

Moved by Dr. Vaughn, second by Dr. Klaveness, that the Secretary be instructed to cast the ballot of the House for Dr. Billion, of Sioux Falls, for Councilor for the Seventh District. Motion prevailed.

Watertown was unanimously chosen as the place of the next annual meeting, the exact date to be fixed by the Watertown Society, not earlier than May 15 or later than May 31, 1914.

The following reports of the Committees on Resolutions and Necrology were read and adopted:

REPORT OF COMMITTEE ON RESOLUTIONS

1. Your committee on resolutions begs leave to report as follows:

While we have realized and felt the difficulty with which the local committee has had to contend in taking care of a large gathering of this kind, and that in fact a city of this size should no oftener be chosen as meeting-place for this Association, yet it is with sincere pleasure that we extend our thanks to the local committee for the whole-hearted and willing kindness shown us during our stay in this beautiful city. Further, we acknowledge and extend our profound appreciation to the Commercial Club and citizens in general of Vermillion for the delightful banquet tendered our Association last evening.

2. Your committee deems it appropriate before leaving our hosts to publicly commend the excellent work done by the instructors of our medical department. We are convinced that the instruction given the students of medicine at our University during the first two years is all that could be desired, and we trust that the medical department will continue to grow in strength, as well as in public confidence.

E. Klaveness,
B. S. Bobb,
H. H. Frudenfeld.

REPORT OF COMMITTEE ON NECROLOGY

It is with sorrow that we report the death of a member since our last annual meeting, Dr. Henry F. Livingston.

Dr. Livingston was born in the Province of Quebec, Canada, April 18, 1843, and died at Yankton, S. D., February 27, 1913. He came to the States when fourteen years of age, locating at Davenport, Iowa, where he received his early education, and graduated from the Keokuk Medical College in 1865. He also attended Rush Medical College, Chicago.

Immediately after his graduation he removed to Yankton, Dakota Territory, and engaged in the practice of medicine for two years, after which he was appointed by the government as physician to the Sioux Indians, with headquarters at the Upper Missouri Sioux Agency. Here he resided for twelve years, four as physician and eight as U. S. Agent.

On the conclusion of his term of office, Dr. Livingston returned to Yankton, where he has since resided. He did not, however, retire to private life, but was soon appointed Assistant Superintendent of the State Hospital for the Insane, which position he held for two years, after which he was appointed medical superintendent, and served in that capacity for two years.

He then renewed the practice of his profession in the city, in addition to which, for a number of years past, he has been coroner of Yankton County, which office he relinquished January 12 last, owing to poor health.

Dr. Livingston was a member of the Eighth District Medical Society, the State Medical Association, and the American Medical Association. He was a thirty-second degree mason, a member of Oriental Consistory No. 1, A. A. S. R., and of DeMolay Commandery No. 3, K. T., and since its founding a valued member of Christ Episcopal Church.

The medical profession of the state, desiring to honor the memory of our departed brother, do hereby resolve—

That we thoroughly appreciate the private worth and public service of our late fellow practitioner, Henry F. Livingston, one who was self-reliant because of his isolation, virile by virtue of his environment, and who knew his patient as a man and friend. He it was who exemplified best and most consistently that unselfish regard for others that glorifies medicine.

And be it further resolved, that these resolutions be spread upon the minutes of the Association.

S. M. Hohf,
Fred Treon,
W. R. Ball.

Upon motion, the House adjourned.

PROCEEDINGS OF THE COUNCIL FIRST SESSION, WEDNESDAY, MAY 28TH

The Board of Councilors met at noon, May 28th, and was called to order by President McCauley.

The Secretary called the roll and announced the following members present, constituting a quorum: Dr. J. B. Vaughn, Castlewood; Dr. D. L. Scanlon, Volga; Dr. H. T. Kenney, Pierre, Alternate; Dr. F. A. Spafford, Flandreau; Dr. James Roane, Yankton; the President, and the Secretary.

The Secretary presented his financial report as follows:

FINANCIAL STATEMENT

Receipts

May 24, 1912, balance on hand	$842.10
July 18, 1912, per capita dues, Dist. No. 3	15.00
September 28, 1912, per capita dues, Dist. No. 9	24.00
October 1, 1912, per capita dues, Dist. No. 7	3.00
October 9, 1912, per capita dues, Dist. No. 6	3.00
October 23, 1912, per capita dues, Dist. No. 3	6.00
October 28, 1912, per capita dues, Dist. No. 6	3.00
December 13, 1912, per capita dues, Dist. No. 6	3.00
January 23, 1913, per capita dues, Dist. No. 9	3.00
March 29, 1913, per capita dues, Dist. No. 4	45.00
April 1, 1913, per capita dues, Dist. No. 8	138.00
April 2, 1913, per capita dues, Dist. No. 2	78.00
April 7, 1913, per capita dues, Dist. No. 3	6.00
April 11, 1913, per capita dues, Dist. No. 3	6.00
April 12, 1913, per capita dues, Dist. No. 3	3.00
April 18, 1913, per capita dues, Dist. No. 3	6.00
May 4, 1913, per capita dues, Dist. No. 9	75.00
May 10, 1913, per capita dues, Dist. No. 3	12.00
May 12, 1913, per capita dues, Dist. No. 3	3.00
May 17, 1913, per capita dues, Dist. No. 7	132.00
May 18, 1915, per capita dues, Dist. No. 3	3.00
May 20, 1913, per capita dues, Dist. No. 1	219.00
May 22, 1913, per capita dues, Dist. No. 6	111.00
May 25, 1913, per capita dues, Dist. No. 2	3.00
Total	$1,742.10

Disbursements

May 24, 1912, warrant No. 20	$50.00
May 24, 1912, warrant No. 21	42.84
May 24, 1912, warrant No. 22	31.60
May 24, 1912, warrant No. 23	150.00
May 28, 1912 warrant No. 24	5.00
June 15, 1912, warrant No. 1	10.35
June 15, 1912, warrant No. 2	8.10
June 15, 1912, warrant No. 3	7.35
June 15, 1912, warrant No. 4	8.30
June 15, 1912, warrant No. 5	11.00
June 15, 1912, warrant No. 6	7.50
June 15, 1912, warrant No. 7	8.26
August 1, 1912, warrant No. 8	100.00
August 8, 1912, warrant No. 9	16.00
August 8 1912, warrant No. 10	6.00
August 30, 1912, warrant No. 11	10.00
September 4, 1912, warrant No. 12	6.00
November 5, 1912, warrant No. 13	10.65
February 8, 1913, warrant No. 14	100.00
May 21, 1913, warrant No. 15	27.50
May 21, 1913, warrant No. 16	18.00
May 21, 1913, warrant No. 17	184.00
Total	$895.95
Balance on hand	$846.15

It was moved that the report be referred to an auditing committee.

Motion was seconded and carried.

The President appointed as an auditing committee: Drs. Vaughn, Scanlon and Roane.

It was moved that a bill of $41.00 presented by the Secretary-Treasurer for postage be paid.

Motion was seconded and carried.

The Secretary moved that Dr. Roane be paid $25.00 for expenses incurred in organizing the Rosebud District Medical Society.

Motion was seconded and carried.

The Secretary stated that Dr. McCauley and he last winter employed a lawyer to draw up a new State Board of Health bill; that the lawyer's fee for this work was $100.00, but that he had consented to reduce it to $50.00.

On motion of Dr. Roane, the sum of $50.00 was allowed for this purpose.

The Secretary stated that Dr. McCauley went to Pierre two or three times to work on this bill, and it was only right the Association should pay his expenses.

On motion of Dr. Roane, the expenses incurred by Dr. McCauley in going to Pierre were allowed.

The Secretary brought up the matter of printing the Transactions of the Association.

Dr. Spafford moved that the contract with THE JOURNAL-LANCET for publishing the proceedings be continued.

Motion was seconded and carried.

SECOND SESSION, THURSDAY, MAY 29TH

The Board of Councilors met at 9 A. M., and was called to order by the President.

The Secretary called the roll and announced the following members present, constituting a quorum: Dr. J. B. Vaughn, Castlewood; Dr. H. T. Kenney, Pierre; Dr. F. A. Spafford, Flandreau; the President, and the Secretary.

Dr. Vaughn moved that $50.00 be appropriated to pay the expenses of the Delegates to the American Medical Association, and that the Secretary-Treasurer be instructed to draw an order for this amount.

Motion was seconded and carried.

In the matter of organizing a new society to be known as the Rosebud District Medical Society, Dr. Vaughn moved that the Secretary be instructed to draw up a charter for this new district.

Motion was seconded and carried.

The Secretary introduced the following resolution:

WHEREAS, The prevalence of disease is, in a great measure, dependent upon the lack of knowledge of the principles of sanitation on the part of the public; and

WHEREAS, The duty of the medical profession involves the diffusion of the knowledge of the principles of the prevention of disease among the laity,

Be it resolved, That the South Dakota State Medical Association establish a public health education committee of three members, to be appointed by the president, whose duty shall be to provide for education of the public along sanitary lines. That each district society shall appoint a similar committee of three, whose duty shall be to carry out the work of the State Public Health Education Committee in their own districts under the supervision of said State Public Health Education Committee.

Be it further resolved, That the sum of thirty dollars be appropriated for the purpose of meeting the expense involved in the work of the State Public Health Education Committee for the ensuing year.

It was moved that the resolution be adopted, and an appropriation of $30.00 be made.

Motion was seconded and carried.

Dr. Vaughn, on behalf of the Auditing Committee, reported that the committee had carefully gone over the records and vouchers of the Secretary-Treasurer, and had found them correct.

On motion of Dr. Spafford, the report was adopted.

Adjourned.

DISTRICT AND COUNTY ROSTER

ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

PRESIDENT
Alway, R. D.....Aberdeen
SECRETARY
Farrell, W. D.....Aberdeen
Adams, B. A.....Bristol
Adams, J. F.....Aberdeen
Atkinson, J. .....Aberdeen
Bailey, F. C.....Redfield
Baldwin, F. M.....Redfield
Bates, W. A.....Northville
Beil, A.....Selby
Brosseau, J. E.....Frankfort
Brown, A. E.....Webster
Bruner, J. E.....Frederick
Carpenter, G. S.....Bowdle
Carson, D. J.....Faulkton
Clark, L. W.....Onaka
Countryman, G. E.....Aberdeen
Crain, F. M.....Redfield
Creamer, Frank H.....Dupree
Deertz, J. J.....Ashton
Dinsmore, W. E.....Claremont
Dunn, J. E.....Stratford
Edwards, Wm.....Bowdle
Ferguson, W. J.....Milbank
Geib, D.....Groton
Gerdes, O. H.....Eureka
Glasier, W. F.....Sisseton
Ground, H. T.....Aberdeen
Gunderman, H. R.....Selby
Harris, H. G.....Wilmot
Harris, J. L.....Webster
Herman, J. D.....Conde
Herman, H. J.....Webster
Hill, Robert.....Ipswich
Hoagland, C. C.....Veblen
Holmes, A. E.....Verdon
Holmes, Chas. F.....Hecla
Jackson, E. B.....Aberdeen
Jenkins, P. B.....Waubay
Johnston, M. C.....Aberdeen
Jones, J. D.....Groton
Jones, R. R.....Britton
Kerns, G. G.....Leola
Kettner, J. C.....Leola
King, H. I.....Aberdeen
Kjerland, T. N.....Webster
Kraushaar, J. F.....Aberdeen
Kriesel, W. A.....Watertown
Kutnewsky, J. K.....Redfield
Longstreth, W. I.....Watauga
McCauley, C. E.....Aberdeen
Mertens, J. J.....Hoven
Miller, E. O.....Aberdeen
Miller, Frank.....Aberdeen
Miller, J. F.....Andover
Miller, V. M.....Mellette
Mitchell, Fred L.....Orient
Murdy, B. C.....Aberdeen
Murdy, R. L.....Aberdeen
Olson, C. L.....McIntosh
Olson, C. O.....Groton
Peabody, P. D.....Webster
Pickering, L. A.....Aberdeen
Potter, Geo. W.....Redfield
Rock, H. J.....Aberdeen
Sampson, I. J.....Mellette
Shultz, H. M.....Aberdeen
Sorenson, A. A.....Aberdeen
Sutton, Dewey .....Wolsey
Totten, F. C.....Morristown
Twining, G. H.....Mobridge
Van Dalsen, Frieda.....Huron
Weidman, C. E.....Cresbard
Whiteside, J. D.....Aberdeen
Zimmerman, Goldie ..Aberdeen

WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

PRESIDENT
Vaughn, J. B.....Castlewood
SECRETARY
Dickinson, S. B.....Watertown
Bartron, H. J.....Watertown
Bates, J. S.....Clear Lake
Campbell, R. F.....Watertown
Church, E. O. .....Revillo
Comly, John B.....Doland
Eddy, J. S..... .....Henry
Finnerud, H. M.....Watertown
Freeburg, H. M.....Watertown
Hammond, M. J...South Shore
Hart, R. S.....Hazel
Hendricson, Paul.....Vienna
Hill, L. G.....Watertown
Johnson, L. A.....Bancroft
Leach, W. O.....Carpenter
McIntyre, P. S.....Bradley
Magee, W. G.....Watertown
Morrisey, R. J.....Watertown
Mullen, R. M.....Florence
O'Bryan, H. J.....Watertown
O'Toole, C. S.....Vienna
Parsons, H. C.....Watertown
Ramsey, E. T.....Clark
Sherwood, H. W.....Doland
Smith, S. W.....Henry
Tarbell, H. A.....Watertown

BROOKINGS DISTRICT MEDICAL SOCIETY—NO. 3

PRESIDENT
Dyar, B. A.....De Smet
SECRETARY
Hopkins, N. K.....Arlington
Burleigh, G. H.....Estelline
Cowgill, C. H.....Iroquois
Foster, J. W.....Lake Preston
Frudenfeld, H. H.....Madison
Garrison, J. F.....Oldham
Green, B. T.....Brookings
Grosvenor, L. N.....Huron
Grove, E. H.....Badger
Mettler, E. C.....Brookings
Moore, C. U.....Carthage
Ogle, George .....Madison
Scanlan, D. L.....Volga
Schoonmaker, F. H..Arlington
Sprague, B. H.....Huron
Stockdale, C. P.....Erwin
Stoll, A. H.....Brookings
Torwick, E. E.....Volga
Winkler, R. P.....Sibley, Iowa

PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

PRESIDENT
Walsh, J. M.....Fort Pierre
SECRETARY
Riggs, T. F.....Pierre
Burnside, I. M.....Highmore
Gearhart, N. B.....Pierre
Hart, B. M.....Blunt
Hollister, C. M.....Pierre
Hoyt, O. N.....Pierre
Hyde, S. M.....Philip
Kenney, H. T.....Pierre
Lavery, Chas. J.....Fort Pierre
Martin, H. B.....Harrold
McWhorter, Port .....Miller
Minard, Ralph W.....Midland
Stegeman, S. B.....Onida
Youngs, A. H.....Pierre

MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

PRESIDENT
Freyberg, F. W.....Aberdeen
SECRETARY
Bobb, C. S.....Mitchell
Auld, C. V.....Plankinton
Ball, W. R.....Mitchell
Beukelman, W. H.....Emery
Bobb, B. A.....Mitchell
Bobb, E. V.....Ethan
Bower, Chas. A.....Mitchell
Buffaloe, A. J.....Mitchell
Clark, J. C.....Mt. Vernon
Clauser, G. A.....Bridgewater
Cook, J. L.....White Lake
Delaney, W. A.....Mitchell
Gifford, A. J.....Alexandria
Hoyne, A. H.....Salem
Isaac, J. P.....Freeman
Jenkinson, H. E.....
.....Wessington Springs
Jones, E. W.....Mt. Vernon
Just, Guy H.....Pukwana
Kammerling, Theo. .....Spencer
Kidd, F. S.....Woonsocket
Kramer, E. R.....Letcher
Langley, C. S.....Lake Andes
Maytum, W. J.....Alexandria
McLaurin, A. A.....Parkston
Merser, Bert .....Bridgewater
Pherrin, O. D.....Stickney

Ramsey, Guy.....Salem
Reamer, E. F.....Mitchell
Reynolds, W. P.....Lane
Rogers, J. C.....White Lake
Smiley, T. B.....Mt. Vernon
Sprecher, Samuel.....Tripp
Stewart, F. H.....Kimbal
Templeton, C. V.....Woonsocket
Treon, Fred.....Chamberlain
Wager, E. N.....Bijou Hills
Waldner, J. L.....Parkston
Wilson, F. D.....Corsica

SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

PRESIDENT
Nessa, N. J.....Sioux Falls

SECRETARY
Parsons, J. G.....Sioux Falls

Billion, T. J.....Sioux Falls
Bliss, G. W.....Valley Springs
Bower, C. F.....Hartford
Brandon, P. E.....Sioux Falls
Brown, S. A .....Sioux Falls
Butler, C. A.....Dell Rapids
Cottam, G. G.....Sioux Falls
Craig, D. W.....Sioux Falls
Culver, C. F.....Sioux Falls
Devall, F. C.....Garretson
Dott, R. T.....Salem
Eagan, J. B.....Garretson
Egan, M. H.....Garretson
Gage, E. E.....Montrose
Grove, M. M.....Dell Rapids
Gulbranson, G. H.....Canton
Housman, W. McK. Dell Rapids
Keller, S. A.....Sioux Falls
Keller, W. F.....Sioux Falls
Klaveness, E.....Sioux Falls
Lewison, Eli .....Canton
Moore, W. E.....Sioux Falls
Parsons, A. W..Tampico, Mexico
Perkins, E. L.....Sioux Falls
Putnam, E. D.....Sioux Falls
Putnam, F. I.....Sioux Falls
Rider, A. S.....Flandreau
Roberts, T. S.....Sioux Falls
Roberts, W. P.....Sioux Falls
Rundlett, D. L.....Sioux Falls
Sawyer, O. O.....Dell Rapids
Schwartz, Jos.....Sioux Falls
Sherwood, H. H.....Humbolt
Skogen, T. T.....Flandreau
Smedley, Irene.....Sioux Falls
Spafford, F. A.....Flandreau
Stevens, R. G.....Sioux Falls
Subera, H. W.....Sioux Falls
Thompson, T. G.....Sioux Falls
Tufts, A. H.....Sioux Falls
Van Demark, G. E...Sioux Falls
Young, S. A.....Lennox
Zetlitz, K.....Sioux Falls

YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

PRESIDENT
Morehouse, E. M.....Yankton

SECRETARY
Roane, James.....Yankton

Adams, G. S.....Yankton
Anderson, E. T.....Platte
Augspurger, E. D.....Menno
Beall, L. F.....Irene
Berry, S. G.....Tyndall
Black, Wm. .....Tyndall
Blezek, F. M.....Tabor
Burkland, P. R.....Vermillion
Bushnell, Wm. F.....Elk Point
Collisi, Nicolas.....Vermillion
Cruickshank, Thos....Vermillion
Duguid, J. O.....Springfield
Eagon, Alonzo .....Yale
Eyeman, E. V.....Yankton
Frink, R. P.....Wagner
Greenfield, J. C.....Avon
Gross, C. C.....Yankton
Gyllenhammar, F. N. H.Gayville
Herzberg, Mortimer..Vermillion
Hohf, J. A.....Tripp
Hohf, S. M.....Yankton
Kalayjian, D. S.....Parker
Kaufmann, E. J.....Marion
Keeling, C. M.....Springfield
Kenaston, H. R.....Bonesteel
Klima, Hermanigald.....Tyndall
Laudman, G. A.....Scotland
Leighton, I. W.....Scotland
Koobs, H. J. G.....Scotland
Lloyd, J. C.....Platte
Mead, L. C.....Yankton
Moore, D. V.....Yankton
Moore, F. A.....Lesterville
Murphy, Jennie C.....Yankton
Owen, N. T.....Beresford
Peterman, A. L.....Parker
Pinard, P. H. A.....Jefferson
Richman, S. H.....Racine, Wis.
Rudgers, D. W.....Yankton
Seapy, J. A.....Geddes
Sedlacek, F. A.....Omaha
Stewart, J. L.....Spearfish
Struble, A. J.....Centerville
Stuart, F. I.....Wagner
Swezey, F. A.....Wakonda
Willhite, F. V.....Yankton

BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

PRESIDENT
Swafford, E. W.....Sturgis

SECRETARY
Minty, F. W.....Rapid City

Allen, A. G.....Deadwood
Ashcroft, F. E.....Deadwood
Billion, J. .....Lead
Brooks, J. D.....Sturgis
Chassell, J. L.....Belle Fourche
Clough, F. E.....Lead
Fasser, A. O.....Belle Fourche
Freeman, J. W.....Lead
Green, J. W.....Lead
Hare, Carlyle .....Spearfish
Hargens, C. W.....Hot Springs
Hodges, V. R.....Terry
Howe, F. S.....Deadwood
Jennings, R. D.....Hot Springs
Martin, J. H.....Lead
Moffutt, T. W.....Deadwood
Naftzger, J. B.....Hot Springs
Robinson, W. E.....Rapid City
Schneerer, F. B.....Deadwood
Spiegelberg, E. H....Hot Springs
Vercoe, W. L.....Whitewood
Waldron, P. J.....Rapid City
Walker, F. E.....Hot Springs
Wilcox, H. H.....Hot Springs

ALPHABETICAL ROSTER

Adams, B. A.....Bristol
Adams, G. S.....Yankton
Adams, J. F.....Aberdeen
Allen, A. G.....Deadwood
Alway, R. D.....Aberdeen
Anderson, E. T.....Platte
Ashcroft, F. E.....Deadwood
Atkinson, J. .....Aberdeen
Augspurger, E. D.....Menno
Auld, C. V.....Plankinton
Baily, F. C.....Redfield
Baldwin, F. M.....Redfield
Ball, W. R.....Mitchell
Bartron, H. J.....Watertown
Bates, J. S.....Clear Lake
Bates, W. A.....Northville
Beall, L. F.....Irene
Beil, A.....Selby
Berry, S. G.....Tyndall
Beukelman, W. H.....Emery
Billion, J. .....Lead
Billion, T. J.....Sioux Falls
Black, Wm. .....Tyndall
Blezek, F. M.....Tabor
Bliss, G. W.....Valley Springs
Bobb, B. A.....Mitchell
Bobb, Clyde S.....Mitchell
Bobb, E. V.....Ethan
Bower, Chas. A.....Mitchell
Bower, C. F.....Hartford
Brandon, P. E.....Sioux Falls
Brooks, J. D.....Sturgis
Brosseau, J. T.....Frankfort
Brown, A. E.....Webster
Brown, S. A.....Sioux Falls
Bruner, J. E.....Frederick
Buffaloe, A. J.....Mitchell
Burkland, P. R.....Vermillion
Burleigh, G. H.....Estelline
Burnside, I. M.....Highmore
Bushnell, Wm. F.....Elk Point
Butler, C. A.....Dell Rapids
Campbell, R. F.....Watertown
Carpenter, G. S.....Bowdle
Carson, D. J.....Faulkton
Church, E. O.....Revillo
Clark, J. C.....Mt. Vernon
Clark, L. W.....Onaka

Clauser, G. A.....Bridgewater
Clough, F. E.....Lead
Chassell, J. L.....Belle Fourche
Collisi, Nicolas.....Vermillion
Comly, John B.....Doland
Cook, J. L.....White Lake
Cottam, G. G.....Sioux Falls
Countryman, G. E.....Aberdeen
Cowgill, C. H.....Iroquois
Craig, D. W.....Sioux Falls
Crain, F. M.....Redfield
Creamer, F. H.....Dupree
Cruickshank, Thos....Vermillion
Culver, C. F.....Sioux Falls
Deertz, J. J.....Ashton
Delaney, W. A.....Mitchell
Devall, F. C.....Garretson
Dickinson, S. B.....Watertown
Dinsmore, W. E.....Claremont
Duguid, J. O.....Springfield
Dunn, J. E.....Stratford
Dyar, B. A.....De Smet
Eddy, J. S.....Henry
Edwards, Wm.....Bowdle
Eagan, J. B.....Garretson
Eagon, Alonzo .....Yale
Egan, M. H.....Garretson
Eyeman, E. V.....Yankton
Farrell, W. D.....Aberdeen
Fasser, A. O.....Belle Fourche
Ferguson, W. J.....Milbank
Finnerud, H. M.....Watertown
Foster, J. W.....Lake Preston
Freeman, J. W.....Lead
Freeburg, H. M.....Watertown
Freyberg, F. W.....Aberdeen
Frink, R. P.....Wager
Frudenfeld, H. H.....Madison
Garrison, J. F.....Oldham
Gearhart, N. B.....Pierre
Geib, D.....Groton
Gerdes, O. H.....Eureka
Gifford, A. J.....Alexandria
Glasier, W. F.....Sisseton
Green, B. T.....Brookings
Greenfield, J. C.....Avon
Green, J. W.....Lead
Gross, C. C.....Yankton
Grosvenor, L. N.....Huron
Gage, E. E.....Montrose
Grove, E. H.....Badger
Grove, M. M.....Dell Rapids
Ground, H. T.....Aberdeen
Gulbranson, G. H.....Canton
Gunderman, H. R.....Selby
Gyllenhammer, F. N. H...Gayville
Hammond, M. J...South Shore
Hare, Carlyle .....Spearfish
Hargens, C. W.....Hot Springs
Harris, H. G.....Wilmot
Harris, J. L.....Webster
Hart, B. M.....Blunt
Hart, R. S.....Hazel
Hendricson, Paul.....Vienna
Herman, H. J.....Webster
Herman, J. D.....Conde
Herzberg, Mortimer..Vermillion
Hill, L. G.....Watertown
Hoagland, C. C.....Veblen
Hodges, V. R.....Terry
Hohf, J. A.....Tripp
Hohf, S. M.....Yankton
Hollister, C. M.....Pierre
Holmes, A. E.....Verdon
Holmes, Chas. F.....Hecla
Hopkins, N. K.....Arlington
Hoyne, A. H.....Salem
Hoyt, O. N.....Pierre
Housman, W. McK..Dell Rapids
Howe, F. S.....Deadwood
Hyde, S. M.....Philip
Isaac, J. P.....Freeman
Jackson, E. B.....Aberdeen
Jenkins, P. B.....Waubay
Jenkinson, H. E..... .....
.....Wessington Springs
Jennings, R. D.....Hot Springs
Jones, E. W.....Mt. Vernon
Jones, J. D.....Groton
Jones, R. R.....Britton
Johnson, L. A.....Bancroft
Johnston, M. C.....Aberdeen
Just, Guy H.....Pukwana
Kalayjian, D. S.....Parker
Kammerling, Theo. .....Spencer
Kaufmann, E. J.....Marion
Keeling, C. M.....Springfield
Keller, S. A.....Sioux Falls
Keller, W. F.....Sioux Falls
Kenaston, H. R.....Bonesteel
Kenney, H. T.....Pierre
Kerns, G. G.....Leola
Kettner, J. C.....Leola
Kidd, F. S.....Woonsocket
King, H. I.....Aberdeen
Kjerland, T. N. .....Webster
Klaveness, E.....Sioux Falls
Klima, Hermanigald.....Tyndall
Koobs, H. J. G.....Scotland
Kramer, E. R.....Letcher
Kraushaar, J. F.....Aberdeen
Kriesel, W. A.....Watertown
Kutnewsky, J. K.....Redfield
Langley, C. S.....Lake Andes
Laudman, G. A.....Scotland
Lavery, Chas. J.....Fort Pierre
Leach, W. O.....Carpenter
Leighton, I. W.....Scotland
Lewison, Eli .....Canton
Lloyd, J. C.....Platte
Longstreth, W. I.....Watauga
Magee, W. G.....Watertown
Martin, H. B.....Harrold
Martin, J. H.....Lead
Maytum, W. J.....Alexandria
McCauley, C. E.....Aberdeen
McIntyre, P. S.....Bradley
McLaurin, A. A.....Parkston
McWhorter, Port .....Miller
Mead, L. C.....Yankton
Merser, Bert .....Bridgewater
Mertens, J. J.....Hoven
Mettler, E. C.....Brookings
Miller, E. O.....Aberdeen
Miller, Frank.....Aberdeen
Miller, J. F.....Andover
Miller, V. M.....Mellette
Minard, Ralph W.....Midland
Minty, F. W.....Rapid City
Mitchell, Fred L.....Orient
Moffutt, T. W.....Deadwood
Moore, C. U.....Carthage
Moore, D. V.....Yankton
Moore, F. A.....Lesterville
Moore, W. E.....Sioux Falls
Morehouse, E. M.....Yankton
Morrisey, R. J.....Watertown
Mullen, R. M.....Florence
Murdy, B. C.....Aberdeen
Murdy, R. L.....Aberdeen
Murphy, Jennie C.....Yankton
Naftzger, J. B.....Hot Springs
Nessa, N. J.....Sioux Falls
O'Bryan, H. J.....Watertown
Ogle, George .....Madison
Olson, C. L.....McIntosh
Olson, C. O.....Groton
O'Toole, C. S.....Vienna
Owen, N. T.....Beresford
Parsons, A. W...Tampico, Mexico
Parsons, H. C.....Watertown
Parsons, J. G.....Sioux Falls
Peabody, P. D.....Webster
Perkins, E. L.....Sioux Falls
Peterman, A. L.....Parker
Pherrin, O. D.....Stickney
Pickering, L. A.....Aberdeen
Pinard, P. H. A.....Jefferson
Potter, Geo. W..... ...Redfield
Putnam, E. D.....Sioux Falls
Putnam, F. I.....Sioux Falls
Ramsey, E. T.....Clark
Ramsey, Guy.....Salem
Reamer, E. F.....Mitchell
Reynolds, W. P.....Lane
Richman, S. H.....Racine, Wis.
Rider, A. S.....Flandreau
Riggs, T. F.....Pierre
Roane, James .....Yankton
Roberts, T. S.....Sioux Falls
Roberts, W. P.....Sioux Falls
Robinson, W. E.....Rapid City
Rock, H. J.....Aberdeen
Rogers, J. C.....White Lake
Rudgers, D. W.....Yankton
Rundlett, D. L.....Sioux Falls
Sampson, I. J.....Mellette
Sawyer, O. O.....Dell Rapids
Scanlan, D. L.....Volga
Schneerer, F. B.....Deadwood
Schoonmaker, F. H..Arlington
Schwartz, Jos.....Sioux Falls
Seapy, J. A.....Geddes
Sedlacek, F. A..... .Omaha
Skogen, T. T.....Flandreau
Sherwood, H. H.....Humbolt
Sherwood, H. W.....Doland
Shultz, H. M.....Aberdeen
Sorenson, A. A.....Aberdeen
Smedley, Irene.....Sioux Falls
Smiley, T. B.....Mt. Vernon
Smith, S. W.....Henry
Spafford, F. A.....Flandreau
Spiegelberg, E. H....Hot Springs
Sprague, B. H.....Huron
Sprecher, Samuel.....Tripp
Stegeman, S. B.....Onida
Stevens, R. G.....Sioux Falls
Stewart, F. H.....Kimbal
Stewart, J. L.....Spearfish
Stockdale, C. P.....Erwin
Stoll, A. H.....Brookings
Stuart, F. I.....Wagner
Struble, A. J.....Centerville
Subera, H. W.....Sioux Falls
Sutton, Dewey .....Wolsey
Swafford, E. W.....Sturgis

Swezey, F. A.....Wakonda
Tarbell, H. A.....Watertown
Templeton, C. V....Woonsocket
Thompson, T. G.....Sioux Falls
Torwick, E. E.....Volga
Totten, F. C.....Morristown
Treon, Fred.....Chamberlain
Tufts, A. H.....Sioux Falls
Twining, G. H.....Mobridge
Van Dalsen, Frieda.....Huron
Van Demark, G. E...Sioux Falls
Vaughn, J. B.....Castlewood
Vercoe, W. L.....Whitewood
Wager, E. N.....Bijou Hills
Waldner, J. L.....Parkston
Waldron, P. J.....Rapid City
Walker, F. E.....Hot Springs
Walsh, J. M.....Fort Pierre
Weidman, C. E.....Cresbard
Whiteside, J. D.....Aberdeen
Wilcox, H. H.....Hot Springs
Willhite, F. V.....Yankton
Winkler, R. P.....Sibley, Iowa
Wilson, F. D.....Corsica
Young, S. A.....Lennox
Youngs, A. H.....Pierre
Zetlitz, K.....Sioux Falls
Zimmerman, Goldie ..Aberdeen

PRESIDENT'S ADDRESS

By C. E. McCauley, M. D.

ABERDEEN, S. D.

It is certainly a great honor to be chosen president of this Association, and I thank you most sincerely for selecting me to this most coveted position.

It will not be my purpose to speak upon any special subject at this time, but I shall call your attention to several things which I deem necessary to the general and lasting welfare of the profession of the state.

In the first place, the membership of this Association should include every practitioner in the state, instead of less than one-half, as it does at present.

Why is it that our Association does not secure more members? Those of us who have watched the progress of medical practice in this state for the last ten or twelve years know of the untold benefit the Association has been to the profession; yet it seems impossible to interest even one-half of the physicians of the state enough to cause them to become members.

The etiology and the cure of this condition includes many factors and would take too much time to discuss here; however, it does not take a prophet to prognosticate radical changes in the not distant future in which the profession will need all the strength of unity, in order to maintain its rightful place in society.

Our English brethren already are finding themselves swept into a medical service in which there is marked restriction of thought and action without any counter-balancing in the way of broader opportunities or better compensation.

This subject is so broad, and so important to the welfare of the profession, that I think this Association should appoint a committee to study the question and devise ways and means for improvement.

The recent Legislature passed a Medical Practice Act which I believe will prove eventually to be very satisfactory. While some things were put into it which we did not want and some left out which we did want, it forms a working basis on which to build. The Legislature was in a very favorable frame of mind, and it was a lack of unity that prevented us from getting a better law.

As the Attorney-General said, there were seventy-five different doctors visited Pierre in the interests of medical legislation, and they had eighty-seven different ideas as to what should be enacted. This Association should prepare, during the coming year, what amendments are deemed necessary, and at the 1914 meeting adopt them, so that the Legislature of 1915 will know exactly what we want.

The question of the division of fees is being taken up by the American Medical Association, and I believe some action should be taken by our Association. Fee-splitting is almost universal in many sections, and the people are beginning to feel that they are being held up by those whom they had every reason to trust. Whichever way you look at it, the fee-splitting proposition is a rock on which the profession may very easily wreck itself.

The State Health Laboratory did not secure the appropriation asked for at the last Legislature and will be unable to increase its facilities as much as was desired.

The Laboratory is giving most excellent service, but needs more funds to carry on its work. Everyone of us should use the Laboratory whenever possible, giving it our support and encouragement, thus showing, by facts and figures, that it is indispensable to the welfare of the state. It is easy enough for some of us to tell the Legislature these things, but if the reports show that every physician in the state uses the Laboratory it will carry far more weight than any mere talking we can do.

The Sanatorium at Custer is doing a noble

work, though handicapped by lack of funds and room. If it were twenty times its present size it would not be able to care for all that should go there. Each individual that goes there learns how to live with tuberculosis and returns to his community as an example, as an educator of others along health lines.

As the Sanatorium is small and unable to care for all who have tuberculosis, we should be very careful to send only those who have a chance to get well. To send hopeless cases only adds to their distress by taking them away from home and friends, and fills a place in the Sanatorium which might be occupied by a case who could receive benefit and perhaps fully recover.

In the last few years we have heard a great deal about eugenics, or race-building. Many states have passed stringent laws regulating marriage and the procreation of defectives. Laws of this kind should be enacted in every state, and rigidly enforced. However, in our enthusiasm for breeding the perfect human thoroughbred we should not forget Francis Galton's definition of eugenics, which is "the study of agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally." Do what we will, we can never prevent the procreation of all of the "submerged tenth." Heredity is not more important than environment.

Mr. Dugdale, who gave us the history of the famous Jukes, says "the tendency of heredity is to produce an environment which perpetuates that heredity."

So, while we use every effort to prevent the breeding of the unfit, we should at the same time see that every child has a fair chance in life. It is not less noble to wipe out slums and suppress child-labor, and pension widowed mothers, than to blame it all upon one's grandfather.

In view of the changing conditions I believe it is time we employed whole-time health officers instead of the present system of county superintendents of health. The counties of the state are spending enormous sums of money quarantining infectious diseases. The same amount of money would hire whole-time men for counties or groups of counties, much the same as we hire our circuit judges. These men would do all the work now done by county boards of health besides supervising all other matters pertaining to the public health, many of which are not even touched upon by the present system. Why should we maintain courts and officials at enormous expense to settle quarrels in which less than ten per cent of the people are interested and let the great question of public health go by default.

The importance of meeting this question of public health and its conservation is just beginning to dawn upon our civic mind. Almost abruptly the consciousness of its magnitude has awakened. Millions of people are involved in this consideration, casual, helpless, and ignorant. The greatest subject in the whole conservation movement is the public health. Upon whom rests the obligation to make this plain? The question answers itself; but is the medical profession, in confessing its obligation, definitely moving to that end?

In certain directions it is. The American Medical Association is of the highest use in focusing and mobilizing medical forces, and its public health functions are intelligent and weighty, but let us not forget that, though our pride is in the fruit, our strength is in the root, and the root of the whole matter is the social group, the practitioner, and the individuals to whom he ministers.

The practitioner bears a closer relation to the people than any other man. The conditions of his associations are peculiarly intimate and authoritative, and by no perversion of his social sense can the true physician accept the idea that his calling is merely a business. As the physician develops in his profession he inevitably reaches the conclusion that the great medical achievements of the world are destined to be found in the field of preventive medicine.

If this conclusion is sound, the future development of medicine becomes a question of controlling antecedent conditions.

The health of the people is the outgrowth of their habits of life and the conditions of our social organization, which they have neither the intelligence to comprehend nor the power to control.

Are we physicians in any better position respecting this? We certainly are, and there is no excuse for our failing to realize its importance. There is great opportunity for us to act as educators. In the last fifty years there has been a complete reconstruction of the basis of medical practice while the viewpoint of the general public has remained practically unchanged.

In order to fulfill its obligation and maintain its place in the social scheme, the profession must

become not alone healers, but educators. It must co-operate with all corrective social forces.

The complexity of the practical problem may seem discouraging and the conditions of living in their relation to health cannot be controlled without the most radical corrective effort.

It is idle to discuss mental or moral or physical health in the terms of a slum. It is wasteful to expend unlimited money on hospitals and other corrective institutions while at the same time we broaden and deepen the social morass which feeds them. It is immoral laboriously to cut down the death-rate of infancy without assuming the responsibility for childhood. It is as wrong as it is foolish to fight for child life and happiness and permit the social struggle to predestine perdition at adolescence.

All of these things we know are interwoven with our specific problems of health. They are things which we know better than anybody else and with which we must deal if we are to come into our full power and influence. It is by this path that the medical profession will come into its final reward. In that day the lack of authority and influence which we are now disposed to deplore will disappear. As the importance of public health becomes understood, when it is apparent to the public that its health underlies all social development, the state will assume a supervision of health matters as freely and actively as it now supervises education. What the future of that development may be it is useless to forecast, but before that time comes the profession will have to take a broader view of its responsibilities and do its work better and more intelligently than it now does.

All this may sound theoretical, but the people are awakening to a broader conception of civic problems and the physician must become a sociologist, co-operating with his community in its social needs.

The medical inspection and supervision of the public schools is absorbing the attention of large thinking men of both the teaching and medical professions.

If we compel all children to attend school for a certain time are we not morally responsible for their physical as well as their mental condition?

The results of school-inspection in preventing disease and defects and an increased efficiency in school-work have been almost startling. Last autumn at the International Congress of Hygiene the section on school-inspection was crowded every day by enthusiastic men and women from all over the world. Here is one place where we can get down to practical and efficient work in preventive medicine and constructive public health.

In closing, I wish to make a plea for unity in the profession. The quarrels of doctors are proverbial, and yet practically all of them are over non-essentials. Let us forget our minor differences, our systems, and schools. If we could take the words *homeopath*, *allopath*, and others of their kind out in the alley and club them to death, it would mark a milestone in medical progress. Let us remember that we are members of a world-wide guild, and the only one whose purpose is the relief of human suffering and the promotion of human happiness.

THE UNIVERSITY OF SOUTH DAKOTA

By C. P. Lommen, B. S.
Dean of the College of Medicine
VERMILLION, S.D.

The University of South Dakota, located at Vermillion, was opened for class-work in 1883. Its growth has been slow but steady. At present it is composed of five colleges, offering work leading to degrees. On its campus there are six buildings besides the central heating and power plant, and a seventh building is about to be constructed. The College of Medicine has its quarters in the large commodious Science Hall.

It is the course of development of medical education in our country and the plan of the modern medical course which have made possible the establishment of a College of Medicine in the University of South Dakota. The third and fourth years of such a course consist entirely of clinical work, which can be done satisfactorily only in large cities having an abundance of hospital facilities. The work of the first two years, on the other hand, is devoted wholly to such fundamental sciences as anatomy, physiology, histology, embryology, bacteriology, pathology, pharmacology, chemistry, and physics; and this work

can be done just as well in a small hamlet as in a large city, because the necessary material can be obtained readily.

It is but natural that the modern medical course has often led to the plan of giving the first two years of medical work on a university campus more or less remote from a clinical school. This is being done at the Universities of Chicago, Cornell, Leland Stanford, and the State Universities of Wisconsin, Missouri, Nebraska, Kansas, Utah, North Carolina, Oklahoma, North Dakota, and South Dakota. And the plan is a success. It is a part of a tendency, which is becoming more and more prevalent, to have at least the first half of the medical course done where the students can be surrounded by an atmosphere of culture, scholarship, and investigation, and where the instruction is given by men whose profession is that of teaching and research.

When the University of South Dakota opened its College of Medicine it was with a firm determination to give only the first two years of the medical course, for it realized that neither Vermillion nor any other city in the state can furnish the necessary clinical facilities for the work of the third and fourth years.

The establishment of the College of Medicine, in spite of protests and opposition from various sources, was based mainly upon two considerations. First, it was nothing but fitting that the State of South Dakota should do its share in giving to medical education its proper standards. This was done by placing the requirements of admission equal to those of the high-grade institutions of the country. Second, it was also proper that the state should do everything in its power to help its worthy young men and women to prepare themselves in the best possible way for the responsible profession of medicine at a cost not beyond their means. The cost of completing a four-year course in a high-grade medical college had gradually reached such figures that the medical profession could be entered only by the sons and daughters of wealthy parents, thus excluding the talented children often found in the families of small means. The full significance of this may be realized when we recall that after completing four years of high-school work and at least two years of college work the embryonic physician still has a four-year medical course ahead of him in which the fees and tuition are high enough to make the minimum annual expenses from $500 to $600 for each student. Obviously, the state was justified in furnishing to its youth opportunities for high-grade medical instruction at a nominal cost for the tuition and laboratory fees.

BIRD'S-EYE VIEW UNIVERSITY OF SOUTH DAKOTA

From the time of its organization, the College has held its proper place among the institutions of the country. Mr. Flexner, who inspected it on behalf of the Carnegie Foundation, made a favorable report on its equipment and work; and Dr. Colwell, representing the Council of Medical Education of the American Medical Association,

placed it in Class A, which was then the highest class. Since these inspections were made, there have been great improvements in equipment and in the organization of the instructional force.

The students who have completed the work offered by the College have maintained themselves creditably in the institutions where they have gone to take their clinical work. So far, not one has been conditioned in any of the courses undertaken; and their clinical work has been done at such institutions as Rush and Northwestern of Chicago. All of them have had hospital positions open to them.

The organization of the State Health Laboratory at the University, whose Director was made Professor of Bacteriology and Pathology in the College of Medicine, established close connection between these two institutions and thus provided opportunities for the medical students, not only to become familiar with the processes and technic of modern health-work, but it also gave them the benefit of the spirit of research and investigation, which must necessarily prevail in such a laboratory.

ADVANTAGES OFFERED BY THE COLLEGE

1. The courses of the two years of college work required for entrance are especially planned as a preparation for the study of medicine and are at the same time so selected as to form the first half of the requirements for a bachelor's degree.

2. The combination course makes it possible to obtain the B. A. and M. D. degrees in six years.

3. The course of study is planned in such a way as to articulate well with the clinical work of the third and fourth years of the best medical colleges of the country, thus giving the student a wide choice of high-grade institutions in which to finish his professional work.

4. The work is done in the atmosphere of a university. The contact with men who have had exceptional advantages in the various fields of knowledge and the association with young people who are preparing for teaching, law, engineering, and other walks of life, will give that breadth of view and catholicity of spirit so essential to success in the professional man.

5. The student receives the maximum of personal attention. No more favorable conditions can be imagined for the mastery of anatomy, for instance, than a small number of students under the immediate and continual supervision of a skilled anatomist, and furnished with an abundance of material for dissection. Similar conditions prevail in all the other departments.

6. Board and room are cheap, and fees are nominal. The poor boy need not fail to study medicine because of the expense, or be satisfied with inferior instruction. No longer is it necessary to leave the state for superior instruction.

THE CO-RELATION OF APPENDICITIS, MUCOUS COLITIS, AND MEMBRANOUS PERICOLITIS*

By Arthur E. Benjamin, M. D.

MINNEAPOLIS.

It is only within the last few years that the medical profession has begun to grasp the real significance of colitis and to appreciate its effect upon the whole system and its relation to other local diseases.

The rôle played by the colon bacillus and other infectious micro-organisms within the bowel in the production of diseases of other organs, by the continuity of structure or through the blood- or lymph-channels, is now considered most important. The hitherto unexplainable headaches, neuralgic pains, malaise, and symptoms of general toxemia are being cleared up, and the mystery surrounding them dispelled. The relationship of a mucous colitis and a toxemia as cause and effect are found not inconsistent in many cases.

The frequency with which a membranous pericolitis is associated with a colitis or an appendicitis, as found at operation, has led to a more thorough study of these conditions. The symptoms of mucous colitis may be materially changed when complicated by appendicitis or *vice versa;* also, a membranous pericolitis may still further modify such symptoms. When all these conditions are present the symptoms may be attributed by the clinician to any one of the three, often through error, by not suspecting the second or third complication. In certain cases we find that membranous pericolitis is an outgrowth of a colitis and an appendicitis oc-

*Read before the Western Surgical Association, Cincinnati, Ohio, December 20, 1912.

casionally resulting from one or both of these conditions. In others there may be a congenital form, but possibly less extensive.

I am not unmindful of the fact that the symptoms of any one of the above three conditions may be mistaken for gall-stone symptoms or a number of other conditions, and must therefore be carefully and systematically differentiated from them.

With these conclusions arrived at, and from not an inconsiderable experience, I am encouraged to present the views as expressed in this paper.

Mucous Colitis.—I am aware that the term *mucous colitis* is not an entirely satisfactory one under which to describe the phenomena associated with a disease of the mucous membrane of the colon characterized by an inflammation or catarrh with an excess of mucus passed; nevertheless, I have chosen this term as best fitting the object of the paper and under this head to recognize other forms, except special ones, as the different stages in the development of the disease.

The chronic variety is the one which concerns us most and will be the one usually referred to throughout this paper.

Cause of Mucous Colitis.—Mucous colitis may arise from repeated acute irritation of the colon, improper diet, poor or unclean food that may be more or less contaminated, constipation, congestion, or infection due to retention of feces. I believe also a great many cases are the outgrowth of repeated attacks of acute indigestion, diarrhea, enteritis, and colitis of childhood.

Goldthwait, Franklin H. Martin, and others have placed particular stress on congenital body-formation as causes for visceroptosis, and therefore a potent factor in colitis. No doubt, the lack of proper tone of the abdominal muscles and incorrect body-formation, the lack of sufficient space in the upper abdomen, and the acquired increased amount in the lower, favor visceroptosis with resulting distention, loss of muscle-tone, and stasis. With disturbances of the stomach and intestine there is a loss of flesh and absorption of retroperitoneal fat, which necessssarily results in a further dropping of the viscera. Metschnikoff attributes much of the trouble of modern life to the fact that our concentrated diet has removed the need of so much large intestine.

Cause of Inflammation in the Colon.—Normally, the large bowel is less active than the small. The cecum is the weakest and widest portion of the large intestine. It is the seat of bacterial proliferation and gaseous production, making habitual distention and atony quite common. It is, as Arbuthnot Lane describes it, "the natural cesspool of the body." The antiperistaltic waves of Cannon, the great mucous surface, and the up-hill course of the fecal current are all elements which retard the progress of the contents of the colon. The development of a chronic inflammation of the mucous membrane in this portion of the colon necessarily follows. A rudimentary or excessively movable large gut may be a congenital element and favor stasis. It is more likely to occur here when visceroptosis is associated and angles are produced in the bowel, or constricting bands interfere with normal fecal circulation.

Symptoms of Mucous Colitis.—The passing of mucus in the stools is a very common symptom, but often not recognized by the patient until his attention is called to it. The mucus is seen sometimes in flakes, viscid and gelatinous masses, or ropy strings. It is frequently accompanied by abdominal pain of paroxysmal type and alternate chronic diarrhea and constipation, the latter, however, is the usual condition. There are sometimes blood and pus in the stools.

There may be gastric distention, eructations, regurgitation, coated tongue, bad taste in the mouth, or erythema, vertigo, fatigue, insomnia, mental depression, anxiety, neuralgic pains, nausea, and occasionally vomiting. The nervous and circulatory symptoms are secondary, due to the absorption of toxins. The toxins seem to have a predilection for the vasomotor centers. There is a loss of balance between the splanchnic and the systemic peripheral circulation with too much blood diverted to the splanchnic area, producing congestion of the mucous membrane of the bowel with the result of too little blood in the systemic periphery, accounting for the cold extremities so commonly observed in these cases. The local irritation in a hypersensitive organism produces exaggerated reflex and nervous disturbances.

Savill reports 40 per cent of 103 cases of neurasthenia due to an incipient form of colitis.

Diagnosis.—The symptoms may resemble an attack of gall-stones, appendicitis, partial bowel obstruction, volvulus, acute dilatation of the stomach, and, occasionally, pyloric obstruction, nephritic calculi, hydronephrosis, and right-

sided pelvic disease in the female. Macroscopic and microscopic examination of the stools makes the diagnosis conclusive by the presence of mucus, blood, or pus. It must be remembered that a prolapsed kidney is frequently present in a prolapse of the right colon, therefore, kidney and bladder distress are often present.

In bad cases the use of the sigmoidoscope should be universal to determine the presence of local inflammation or complicated growths in the sigmoid. The Roentgen ray is also a very important adjunct for the purpose of diagnosis.

The rise of temperature and increased leucocyte count in appendicitis, as well as local tenderness and rigidity of the muscles of the abdomen, will characterize an appendicitis.

The soft doughy mass, gurgling in the right fossa, and the dull character of the pain, with little acceleration of the pulse and slight or no rise of temperature, are symptoms more prominent in a typhlitis or colitis involving the cecum especially. The pain may be general when the ascending and transverse colon are affected.

Complications.—De Langenhagen, Goldthwait, and many others have demonstrated that arthritis, gout, or rheumatism may have its origin in a mucous colitis. Neuralgia, nephritis, neurasthenia, and toxemia have been also demonstrated to have an origin in gastro-intestinal disease.

Colitis and Appendicitis.—In a series of 625 cases Geo. D. Kahlo reported 78 cases of appendicitis. Alfred Mantle of London says that intestinal surgery has shown that the mucous membrane of the colon and the appendix may be simultaneously affected, and he also states that, after a thorough investigation of many cases of colitis, mucous colitis is not infrequently an antecedent of appendicitis. Treves, in a report of a series of 45 cases operated upon for appendicitis in which the symptoms were unrelieved, declared that "one-fifth were suffering from persistent or relapsing colitis." He further states that "the association of colitis and appendicitis, is common, and that by extension of the disease, the appendix is involved." Lockwood says: "I do not know whether appendicitis can cause mucomembranous colitis, but, on the other hand, I do know that mucomembranous colitis can cause appendicitis." Poynton cites three cases in children where this happened.

Caley has pointed out that the formation of concretions in the appendix is largely responsible for the graver forms of appendicitis and may be connected with disordered secretion of the mucous membrane of the cecum and appendix. Owen Williams says "these concretions consist of calcium salts which are excreted by the intestinal mucous membrane and which enter into combination with the (saturated) fatty acids of the food to form insoluble compounds." "If formed in the appendix, they may set up local inflammation; or in the colon, catarrh with colicky pains."

Raymond Russ collected reports from Jordan, Kukula, Lanz, Sich, Polya, Feltz, Reisinger, Thomas, Henmeter, McWilliams, and Bittorf; and from these reports he concludes that, as "primary typhlitis does occur and as the mucous membrane of the appendix is continuous with that of the cecum, secondary inflammation of the appendix will be frequent.". A number of cases observed at operation have an inflammation of the cecum and ascending colon with involvement of the appendix; and in these cases mucous discharges from the bowel are frequent. The natural conclusion is, that the inflammation in cecum and colon has extended to the appendix. The extension of disease of the mucous membrane of the colon to the appendix may be aided by the lymph-channels as well.

Nearly every surgeon has seen attacks of acute appendicitis follow or accompany an acute diarrhea or colitis.

X-ray photographs have demonstrated that bismuth will enter the appendix from the cecum, and therefore we must conclude that the bowel contents will enter an appendix from the cecum, and inflammation result or appendicitis supervene.

Membranous Pericolitis.—It is not at all unlikely that we shall soon revise our opinions and ideas as regards acute and chronic inflammatory diseases of the right pelvis. We may reaffirm many of the ideas of older writers and recognize typhlitis and perityphlitis as having a clinical and pathologic entity.

The ante-mortem treatment of today in contrast to the older "post-mortem" attention given cases of "peritonitis," "inflammation of the bowels," and " obstruction," formerly considered fatal maladies, has demonstrated that, in most instances, the appendix is the offending organ.

The removal of the appendix has become quite universal and "so easy" in simple cases that the incompetent general practitioner tries his hand at it occasionally. This has led to unnecessary operations and the unwarranted removal of the

appendix. It was considered a mark of great surgical dexterity and skill to take out the appendix through an incision two fingers' width in length and in two minutes. This favored rapid operating and greatly facilitated the surgeon in increasing the number of operative cases per day and dollars per month.

From this method the public has suffered and the profession has been criticised. Many patients operated upon were not relieved of their symptoms. They returned with their old compaints, as soon as the psychological effect of the operation had passed. These failures have told upon the reputation of the surgeon and have discredited surgical work in general, therefore reasons other than "neurasthenia" had to be found for the continuation of the patient's suffering.

Larger incision are now made,—often median openings,—and a general investigation of the abdominal and pelvic organs is carried out.

The frequency with which the cecum, appendix, and colon were found, at operation, to be enveloped in a second layer of tissue, caused careful and observing surgeons to ascertain the true significance of this membrane. Many opoperators noting, in the course of abdominal operations, the crippling effect of this membrane upon the bowel, proceeded to separate some of *these fibers releasing the bowel from the constricting bands.* English surgeons years ago wrote more or less upon what they termed *typhlitis* and *perityphlitis,* and had they not been thrown off the track by the "appendicitis craze" and had they pursued their studies along this line, the profession would have been enlightened earlier.

Virchow, Binnee, Willms, and others have described various irregularities and abnormal conditions surrounding the colon with a movable cecum. Dr. Jabez B. Jackson, in his excellent paper read before this Association in December, 1908, first described the condition as a clinical entity. The pathological, as well as the surgical, consideration of the disease awakened much interest, and more careful investigation has been going on since that time, until now we have arrived at some definite conclusion in regard to the disease.

Membranous Pericolitis, the Result of Colitis.—I need not enter in this paper into a description of the membrane, as Gerster, Jackson, Pilcher, Harris, and others have given us such a clear understanding of it that nearly every surgeon is now familiar with the appearance in the various forms in which it is found. I shall mention, however, a few points of special interest and give some personal observations.

I have found in most cases that the membrane and fibers with the blood-vessels seem to radiate from the parietal peritoneum onto the colon fan-shaped, or to run at right angles to the gut and often constricting and greatly narrowing the lumen of the colon in such a manner that hernia-like protrusions are observed between these constricting transverse fibers, producing an unevenness greatly accentuated in places, the walls being very thin and even transparent at times. Upon the liberation of these transverse fibers, the cecum or colon unfolded and presented more of a uniform dilatation. I have observed this membrane completely encircling the cecum or ascending colon, involving the hepatic and splenic flexures and often the transverse colon and sigmoid.

The ascending colon is often rotated outward to an angle of 45° or more by the contracting and constricting fibers. The membrane covering the sigmoid is less vascular and has been found covering this portion of the colon, constricting it or binding it down in an abnormal position. My attention was first called to the sigmoid involvement about eight years ago, when I began separating the adhesions here allowing the bowel to assume a normal shape and position. It was observed in women, particularly, that the fibers seemed to extend over and in front of the broad ligaments, pulling the sigmoid over at this point.

My observations were later directed to the hepatic flexure, as well as to the cecum and transverse colon, and the operations were each time more and more carefully and extensively performed with surprisingly good results.

It was Dr. Jackson's paper, however, which gave me inspiration and caused me to fix upon the condition a special significance and to do a more complete and careful and systematic separation of these fibers when called for. I have tried to recognize the importance of after-treatment to clear up what I thought was often the causative factor, namely, the colitis.

Etiology.—The etiology of this membrane is in an unsettled state. Authors differ materially in their opinions. Chas. H. Mayo suggests that these bands and films may be due in some cases to the late rotation of the bowel and descent of the cecum. Willms has suggested that an unduly mobile cecum with ptosis may lead to dis-

tention, atony, and inflammation of its walls, conducive to fecal stasis. Lane believes the membrane is the result of the tendency of the cecum and ascending colon to fall, due to the upright position, and that these lines of strain are crystalized into adhesions, forming bands which tend to fix the structures.

Alfred Mantle says, in his article entitled "Mucous Colitis and Its Relation to Appendicitis and Pericolitis:" "While we have for years recognized the condition of perityphlitis, we have not so readily accepted the fact that any part of the colon may have an inflammatory area starting in the mucous membrane and involving the peritoneum, as in perityphlitis." Rolliston, Treves, Pilcher, Jackson, Gerster, and Frazier have expressed the belief that the primary cause of membranous pericolitis is the chronic colitis.

I am convinced that there is more than one etiological factor concerned in the production of this membrane, as found in the various grades of inflammation and forms of this trouble. Cecum, mobile or improper rotation of the gut, lax belly-walls with general visceroptosis, Lane's kink, disease of the gall-bladder, pelvic inflammation in the female, prolapsed cecum, chronic constipation, chronic dilatation and atony of cecum, bands and constrictions and kinks of the colon with stasis—all have a bearing upon the etiology of this membrane. A thinned-out bowel-wall and the migration of the infectious micro-organisms through the wall of the gut seem a reasonable explanation for the reaction of nature to irritative influences by the calling forth of the opposing forces to prevent further dilatation and infection of the surrounding tissue by the production of this adventitious membrane.

It is impossible to say what is the normal range of motion of the cecum in the healthy individual. Properly speaking, there is no such thing as a mesocecum, so that a cecum of normal size floats freely and enjoys a considerable amount of movement.

Dr. Dreyer has reported 67 per cent movable cecums at autopsy, and only 11 per cent of women are free of the condition, which leads us to say that, if only 11 per cent of women have a fixed cecum, that which has been considered the normal state may be the abnormal, and that a movable cecum is not by any means inconsistent with good health.

A loaded cecum no doubt will cause a prolapse and stretching of its supports and resembles a mobile cecum. We may find the cecum firmly fixed in the pelvis and a dense membrane surrounding the cecum and colon. We proceed to liberate this cecum in our treatment of the disease, and find the colon then to present more of an even and normal surface. Some have considered cecum mobile as the first cause and perhaps the only one. If such is the case why should not a similar membrane occur on a movable loop of the small intestines especially where there is some stasis. Furthermore, we observe that this membrane is present in other portions of the alimentary canal where motion is of a limited extent, such as the sigmoid, and hepatic and splenic flexures. Also we may occasionally find a membrane present similar in appearance but thinner and more delicate upon the small bowel where an enteritis antedated the operation or was present at the time of the operation or when there has been stasis due to distal adhesions, as Lane's kink, volvulus, or partial obstruction.

Intracolonic tension, produced by distal kinks and bands causing partial obstruction with stasis, fecal, and gaseous distention, results in improper drainage; infection follows from retained mucus and feces. The infectious micro-organisms are forced through the thinned-out cecal or colonic wall and invade the contiguous peritoneal membrane. Nature rebels against the insult and immediately throws out a protecting wall or membrane, which varies in density and extent in direct ratio to the virulence of the infection and the duration of the disease.

We see a similar membrane present at the pyloric end of the stomach, which is probably produced by some near-by infection, as a diseased gall-bladder, or from an old ulcer with some constriction present which has caused gastric stasis, and often little or no demonstrable lesion can be found outside of the membrane.

It has been demonstrated by Franke that the cecum and ascending colon are connected by a chain of lymphatics with the right kidney; and he states that bacteria are able to pass indirectly from the intestine into the lymph-vessels if there is even a slight lesion of the intestinal wall. In the production of membranous pericolitis, there is evidence that such a transmigration of the bacillus through the walls and into the lymph-spaces does take place frequently. Pilcher reports several cases to substantiate his belief that pathological conditions of the kidney are directly consequent to preceding pathological changes in the cecum and ascending colon.

It is also possible for the gall-bladder to be-

come infected through the blood and lymphatic circulation with the production of gall-stones. Not infrequently do we find adhesions around the gall-bladder, probably due to infection of that organ through the blood and the transmigration of the infectious micro-organisms through the wall of the gall-bladder to the surrounding structure, producing peritoneal reactions with adhesions.

If a kidney may become involved on account of a colitis and a diseased gall-bladder, causing adhesions around its fundus, why is it not possible for this membrane to form on account of the transmigration of infectious micro-organisms through its wall?

Symptoms of Membranous Pericolitis.—The symptoms of this condition vary according to the location of the membrane, the amount of constriction and stasis, and the consequent toxemia. A modification of symptoms is often dependent upon diet or exercise of the individual. Muscular spasm and enterospasm are noticeable in cases where there is an interference of the bowel function and limitation of its caliber. All the symptoms dependent upon an associated colitis, stasis, and auto-intoxication, such as malaise, periodical headache, backache, nausea, vomiting, and neurasthenia, may be present, and when there is an exfoliation of the mucous membrane and ulcerated condition of the colon there may be a leucocytosis with fever and chills. There is a loss of weight and strength of the general muscular system. The color of the individual is usually sallow and presents a picture of a person suffering with the so-called bilious attack.

In nearly every case there is more or less pain in the abdomen. This is especially noticeable in the region of the cecum and very often near the gall-bladder simulating gall-stones. In bad cases, especially where there is a kinked condition at the hepatic and splenic flexures or displacement of sigmoid due to bands pulling the bowel out of place, the pain may be general. The soreness along the colon may be constant, but there are acute exacerbations that are very severe at times, the pain being located so often near the appendiceal region during the acute attack that many cases are referred to the surgeon for operation for the removal of the appendix.

Constipation is the rule, although there may be an irregularity of the action of the bowel, alternating between diarrhea and constipation. Nausea and vomiting are not infrequent. Dyspepsia is the most common complaint, there being hypochlorhydria, gaseous distention and eructations, and distress following meals. The cecum may be greatly distended with gas at times, and may give a tympanitic note upon percussion. Evacuation of the bowel and the expelling of gas usually give relief. It usually accumulates in the colon, especially in the region of the cecum and possibly the transverse colon and sigmoid. Mucus may be expelled in large quantities or come away at the usual evacuation of the bowel. This mucus may be ropy or stringy or in flakes or gelatinous masses. It occasionally contains blood, pus, and, in a severe type of the disease, membranous exfoliation of portions of the colon. Pilcher describes the pathological complex as a defect of peristalsis, the mechanical action of the bowel being rather obstructive from bands, enterospasm from persistent irritation, and auto-intoxication.

Membranous Pericolitis and Appendicitis.—Innumerable patients have been operated upon in the past for appendicitis and are being operated upon today with little or no benefit. The microscope is revealing our mistakes and the futility of such surgical work where we have not gotten at the true causes of the symptom-complex. The button-hole incision for the removal of the appendix is an operation of the past. Very few appendices should be removed now through a small incision unless we are certain that the disease is confined to this organ alone, or that it is of such an acute type that the appendix should be alone attended to. Therefore, the indiscriminate removal of the appendix without a complete diagnosis and thorough investigation will seldom be seen in a few years. Very few statistics have been published of the end-results of chronic appendicitis. Graham and Guthrie (*Jour. of the A. M. A.*, vol. 54, p. 960) reported a series of chronic appendicitis of the dyspeptic type, where approximately five per cent were not cured by operation and ten per cent had occasional return of symptoms. Stanton, in 1911, reported, in a series of 100 cases, thirty-six where the end-results were not satisfactory or other lesions were found as the cause of the symptoms. Willms, before the 40th Congress of German Surgeons, expressed the opinion that the diagnosis of appendicitis was often made too lightly. He estimated that at least 30 per cent of so-called cases of chronic appendicitis are cases of chronic constipation with a movable, dilated, and prolapsed cecum. Klemm,

Hausman, Stierling, and others have made similar statements.

A membrane forming around the caput ceci may bind the appendix down, producing angulation and degenerative changes in its walls. When this membrane involves the terminal portion of the ileum it may prevent the normal delivery of the contents of the ileum into the cecum, producing what is ordinarily termed Lane's kink. Chas. H. Frazier, in his recent article published in the *Annals of Surgery*, emphasizes the necessity of studying each individual case so as to avoid the removal of the normal appendix. We might add here that it is not the removal of the normal appendix that is to be regretted so much as the fact that the real cause of the symptoms, namely, membranous pericolitis and an underlying colitis, was not benefited by the removal of the appendix, and the removal of the appendix cannot free the patient from a long-continued colonic inflammation and suffering.

No one who has operated many times for the removal of the appendix can have failed to note the frequent coexistence of a more or less extensive and a more or less intense congestion of the cecal peritoneum, a true typhlitis.

I have for some time appreciated that in occasional instances this co-existing perityphlitis and pericolitis was of more importance than the appendicitis itself.

Treatment of Mucous Colitis, Membranous Pericolitis, and Appendicitis.—In a case with symptoms, e. g., passing of mucus, colicky pain, and no fever, it has been my habit to clear up the diagnosis by the various methods now at our command, and to determine, if possible, whether the case is one for medical or surgical treatment. In cases with mild forms of the trouble with evidences of colitis, colicky pain, acute exacerbations of chronic inflammation with more or less stasis, colon-distention, and auto-intoxication, and where visceroptosis is present, the colon lavage and olive oil enemas given in the knee-chest position and right recumbent position have been employed quite constantly with altered diet of such a character that it produces little or no gaseous or intestinal distention and discomfort. The administration of intestinal antiseptics, such as beta-naphtol, salol, boric acid, sodium salicylate, belladonna, bismuth, and charcoal, and systematic exercises and massage to develop a more capacious upper abdomen and a reduced lower abdomen by the proper tone of the abdominal muscles, give good results.

Franklin H. Martin explains, in a recent article, a very elaborate system of gymnastics that I had been advocating in a modified degree for several years. An increase in the cavity of the upper abdomen is accomplished by elevating the foot of the bed whenever the patient lies down and often during the whole night, keeping the colon fairly empty by daily flushing and the wearing of a lower abdominal support or a properly fitted corset in females while the patient is erect, this being placed before rising. Attention on the patient's part to moderate exercise, warm clothing and avoidance of exposure to undue cold will give the greatest comfort, and attracting blood from the splanchnic area to the periphery will relieve the affected bowel, while care in diet, avoiding all articles of food the residue of which may irritate the mucous membrane, must be strictly enforced.

It is only left to say that the treatment by this method of chronic constipation and mucous colitis, associated or not with appendicitis and pericolitis, has been quite successful, as well as educational to the patient.

I am confident that the unnecessary operations of this kind would occur much less frequently if every colitis patient were properly treated from the incipiency of the case, and that the results of these operations, when indicated, would be far better if more attention were given to the after-treatment of the colon.

In a certain percentage of cases, however, in which the symptoms are so palpably due to kinks, flexures, and adhesions owing to a membranous pericolitis, surgical intervention is called for; and in such cases we are often surprised to find under what difficulties the intestines had been functionating, yet doing comparatively satisfactory work, but after their release we find that they soon regain their tone and muscle-activity to such an extent that the patient is relieved of the stasis, constant infection, malaise, headache, and general debility. In dealing with the fibrous bands, *per se*, it becomes a matter of experience and judgment as regards the handling of them. It has been my habit to liberate the colon, including the sigmoid and splenic flexures where they are involved, and to dissect off this membrane by blunt dissectors, gauze, and scissors, and to leave the underlying tissue in as normal a state as possible, free from bleeding surfaces and raw areas. When membrane is closely

associated or connected with the bowel, as in a congenital form, it is not removed excepting constricting bands.

In order to get at the part of the bowel that is particularly affected, our incisions must be made in such a manner as to accomplish this.

In case of general pain our incision must necessarily be a median one; but where the symptoms point quite positively to a right-sided involvement (the usual case), the right-rectus incision or one along the linea alba, with an oblique incision inward at the upper portion of the abdomen, and in some instances the Bevan incision will reveal all of the tissue affected.

The stomach may be pulled out of place, resulting in a kink at the pylorus or portion of the duodenum because of adhesions of the transverse and ascending colon resulting in dilatation and interference with the motility of the stomach. Upon the liberation and straightening out of the colon, the stomach, if pulled out of place, regains the normal position and function in most instances. The appendix is frequently found held fast by bands and often distended and twisted so that its drainage is imperfect. Portions of the ascending colon that are held and constricted or twisted by bands should be liberated, and all bleeding points ligated and raw surfaces protected as much as possible. Longitudinal plication operations of the cecum, when greatly dilated, should be performed. This lessens the size of the bacteria-holding sac and at the same time strengthens the walls of the intestine and makes stagnation and absorption less possible.

One thing is certain, namely, that cases requiring surgical intervention must be followed up after the operation in a rational and intelligent manner. Simply removing the membrane and not directing our attention to the cause, is futile and only invites a return of the trouble. Attention should be given the diet and proper exercise to tone up the lower abdominal muscles, and the same treatment should be followed out after the operation that is inaugurated in the non-operative type or stage of the disease. The accompanying colitis must be cured, and by this means the cause of the pericolitis relieved and future bands prevented.

When a cecum mobile is encountered and not already fixed posteriorly, I believe it advisable to fix it so as not to allow the possibility of the too close approximation of the cecum and the hepatic flexure of the colon.

Where nature has in a measure by the formation of bands fixed the cecum, I am in the habit of confining my attention to the fibers constricting the colon or cecum in any way, for I believe the others will disappear under proper treatment of the colitis. Where the stomach and transverse colon are especially prolapsed I have in some instances shortened the gastrohepatic ligament and occasionally fixed the omentum to the abdominal wall, similar to Coffee's method, with very satisfactory results. This method lessens the possibility of a refixation of the omentum and transverse colon to the ascending colon. Patients are usually put on the left side with the foot of the bed elevated when the cecum and colon have been liberated to prevent a close association of its diseased walls.

CONCLUSION.

1. The colon bacillus is a most deadly enemy of the human race when it escapes from its normal habitat into the peritoneal cavity.

2. Owing to the dietary habits and the upright posture assumed by man the propagation of the bacillus is favored.

3. The congenital body-form and the imperfect development of the large intestine, as well as insufficient support and pressure of clothing, favor visceroptosis, and visceroptosis favors stasis.

4. Repeated attacks of colitis in children may terminate in a chronic form of disease to be manifested in later life.

5. Intestinal stasis causes a multiplication of the colon bacillus within the colon.

6. The weakest portion of the colon, namely, the cecum, owing to its anatomical location, is the natural receptacle for retained feces, mucus, bacilli, and other contents of the bowel.

7. The two fixed points, namely, hepatic and splenic flexures, inhibit fecal circulation.

8. The reverse peristaltic waves and the "uphill" course of the first part of the colon are prime factors in the production of stasis in the cecum.

9. When stasis or intracolonic tension exists in the presence of retained infectious micro-organisms, the law of osmosis is put in operation and a transmigration of these organisms through the walls of a thinned-out colon occurs.

10. There is always a reaction on the part of tissue thus invaded, and barriers are offered to protect surrounding structures.

11. Without the colon these barriers are manifest in the form of veil-like membrane radiating

from the parietal peritoneum to and over the area of the colon most affected.

12. This membrane may not be placed uniformly over the colon or cecum, but often in an imperfect and crippling manner.

13. The pressure of these bands may cause degeneration and scarring of the intestinal walls with contraction, resulting in thick bands or dense adhesions which produce obstruction and secondary stasis.

14. When these fibers hamper the action of the large gut they are a menace to the health of the individual and must be removed.

15. The appendix is often caught in this veil-like membrane or dense bands with resulting constriction and degeneration of its walls.

16. When the freedom of action of the appendix is thus interfered with, bacteria are retained and further degeneration and infection result. Acute attacks of appendicitis may supervene following chronic symptoms of the disease.

17. A chronic colitis may result, sooner or later, in a membranous pericolitis and demand surgical intervention to release an imprisoned or restrained portion of the colon. The results of such an operation, however, depend, to a great extent, upon consistent dietary and general hygienic measures following.

18. Button-hole incisions for appendicitis should seldom, if ever, be employed.

19. Surgeons must take a more comprehensive view of diseases of the abdomen and especially of the right side, and cease to focus their attention on the appendix alone.

20. A careful observation must be made of all the abdominal organs at the time of the operation and a general view taken; and with a clear understanding of the clinical symptoms and a careful investigation of the pathological conditions requiring attention, and with an intelligent interpretation of these, our results will be quite satisfactory.

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THE PROGRAM FOR THE 1913 MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The Program Committee of the Minnesota State Medical Association makes its appeal for contributions to the program of the 1913 meeting, through our columns (see page 412), and no other invitation will be sent out.

A day of well-selected clinics will add both interest and profit to the meeting, and by giving only one day to papers such a selection can be made that this part of the program should have unusual interest.

We desire to impress upon all who take part in the program two or three points. The by-laws of the Association place a time-limit upon papers. In many instances this limit is ignored, but in such cases, as a rule, the papers are not read in full. No doubt, it is sometimes difficult for a writer to confine his paper to this time-limit, but, we venture the assertion, in almost every instance the paper that transgresses the limit would be much improved by boiling it down to the limit. The elementary and the non-essentials have too great a part in most papers, and because of this many a good paper receives but scant notice, and that even from men very much interested in the subject treated.

We also wish to urge upon those who present clinics that they bring to the meeting a well-written report of their clinics, in order that the same may appear in the transactions of the Association. It is not essential that the written report be the same as the spoken; but it is essential for the record of the Association and for the members not present at the meeting that the report of a case be put in intelligible form, which is not always obtained when a speaker is stenographically reported.

We also wish to urge one or two points upon all who prepare matter to be printed in THE JOURNAL-LANCET or anywhere else:

1. Have your matter type-written with double spacing and with wide margins (not less than one inch) at both ends of the line.

2. Read over and over again the type-written copy, and feel that it is discourteous to the editor and to the reader and discreditable to yourself to misspell a proper name or leave your meaning at any vital point, indeed at any point, obscure. We are happy to say that editors, at least some of them, know a good deal, but they do not know the name of every man quoted in medical literature, and frequently they do not know just what some writers are trying to say in their articles. With these limitations they cannot always correct the spelling of unfamiliar proper names, and they will not always take the pains to point out to a writer that his careless language is capable of two or more constructions.

A clearly and well-written paper often attracts more attention than its content deserves, while many a paper of high-grade content, but poorly written, receives far less attention than it deserves. A little or, if necessary, a good deal of attention will correct most all of the faults found in papers submitted for publication; and surely no amount of attention is too much to bestow on a paper offered the medical profession.

THE CONVICTION AND SENTENCE TO IMPRISONMENT OF THE EDITOR AND PUBLISHER OF *JIM JAM JEMS*

If for no other reason, because of the pernicious activity of the editor of *Jim Jam Jems* at the recent meeting of the A. M. A. our readers, we think, will be interested in the facts connected with his conviction and sentence to imprisonment, together with the publisher of the paper.

Jim Jam Jems is a monthly publication issued from Bismarck, N. D., and is said to have attained a circulation of many thousand copies.

It has been barred from the mails and has been sent out, for some months past, by express and sold at news-stands, cigar-stores, and drug-stores. The cause of its large circulation can be found by an intelligent reader in any issue, especially in any of its earlier issues; and this cause is one or more obscene articles in every issue.

To be sure, the paper is not wholly obscene. On the contrary, it exposes many frauds and evils and publishes some matter of unquestioned character and merit. The editor and publisher were tried in the United States court for circulating obscene matter as interstate commerce. They had two trials, being acquitted at the first one and convicted at the second one, Federal Judge Charles A. Willard presiding at each trial.

There were practically only two points at issue in the trial. One was as to whether certain matter in the numbers of the magazine specified in the counts of the indictment was obscene, and the other point was as to whether the jury should consider a copy of the magazine as a whole or only the article or articles claimed to be obscene. In his charge to the jury, Judge Willard read the following definition from a decision of the United States supreme court:

> The words "obscene," "lewd," and "lascivious," as used in the statutes, signify that form of immorality which has relation to sexual impurity, and have the same meaning as is given them at common law in prosecution for obscene libel.

As bearing somewhat more closely upon the subject, the Judge also read from a decision of the appellate court of the Eighth District, which includes Dakota, in which state this case was tried. That decision reads as follows:

> The true test to determine whether a writing comes within the statute is whether the language has a tendency to deprave and corrupt the morals of those whose minds are open to such influences and into whose hands it may fall, by arousing or implanting in such minds obscene, lewd, or lascivious thoughts or desires.

The jury found both men guilty upon two counts, one for sending by express the March (1912) issue, and the other for sending the midsummer or semiannual edition of the same year. Judge Willard sentenced each of them upon the first count to two years' imprisonment in the federal prison at Leavenworth and a fine of $2,000 and one-half the costs of the suit.

The sentence under the second count was merely technical, for some of the matter in the semiannual edition was the same as that in the March issue, and thus the verdict of the jury may have been based, wholly or in part, upon the same offense in each case. The judge therefore imposed a second sentence of two years, but made it run concurrently with the first sentence, so that the entire time of imprisonment is two years for each man.

We have given this statement of facts in editorial form mainly as a warning to a class of men who play with fire, and, alas! we have too many of them in the medical profession, particularly the abortionists.

AN IMPORTANT PUBLIC SERVICE

It has always been recognized that the medical profession, more than any other perhaps, occupies towards the public a position of responsibility, which, generally speaking, it has shown no disposition to shirk. One of the duties laid on the profession, and commonly accepted, has been that of contributing freely its results of research and experience to the amelioration of humanity. An opportunity to which every member of the profession can contribute is presented and emphasized by a circular letter which has just been issued from the Department of Labor and Industries of Minnesota. This letter draws attention to the fact that at the last session of the state legislature a law was passed requiring physicians to report all cases of lead, phosphorus, mercury and arsenic poisoning due to the patients' employment, and also all cases of anthrax and compressed-air illness.

Such a step is one in the right direction, for the statistics thus acquired will be extremely valuable in furnishing a basis for future preventive legislation. In order that the department may succeed in its announced purpose it is necessary that it should have the hearty co-operation of every member of the medical profession; and, outside of personal and private interests, it is the duty of physicians to report all such cases, in order that conditions may be investigated and steps taken to enable the state of Minnesota to reduce to a minimum industrial disease within her borders.

Similar statistics have been collected in other states. We learn from the circular that conditions in respect of many of these diseases are far worse than is generally understood, even by those members of our profession who believe themselves to be informed on these subjects.

THE JOURNAL-LANCET hopes that no physician in Minnesota will fail to make full report promptly to the Department of any case of the class specified in the circular coming under his observation. In so doing he will render an important public service.

INTERNATIONAL CONGRESS ON SCHOOL HYGIENE

There will be held next month (August 25 to 30) in Buffalo, New York, the Fourth International Congress on School Hygiene, a notable gathering of public-health workers, educators and physicians under the presidency of Dr. Chas. W. Eliot, President Emeritus of Harvard University. Representatives from Europe and other countries of the world will be present, in addition to delegates from all parts of the United States. An extensive exhibit showing various phases of the school-hygiene problem will be conducted. A program will embrace practically every department of the field of school hygiene. This is the first gathering of its kind ever held in America. An elaborate program of entertainment is being planned by the city of Buffalo.

The Secretary-General sets forth the purpose of the Congress in the following words:

> It is concerned with the establishment of efficient medical, hygienic, and sanitary supervision in all the schools of our country. The success of such supervision means increased comfort, larger school-room success, and greater certainty of future efficiency for the child; it means fewer absences from the school room, fewer interruptions of school work by epidemics, and more satisfactory educational response to class-room activities for the school; it means less anxiety, more health, and more happiness for the home; it means a more remunerative investment for the taxpayer; it means more efficient, more enterprising, more prosperous citizens for the community; and it means the conservation of human life, a resource and an asset of the very greatest importance to our nation.

Judging from the existing conditions in the majority of our public schools, the value of fresh air in the schools, whether in rural, town, or congested urban communities, is given scant consideration. There is much for all of us to do in this public-health movement. Whether our children and the children of our neighbors are allowed their God-given right to grow and develop in proper hygienic environments, rests upon the intelligent citizens of the various communities. The Women's Clubs all over the country are taking an active interest in all conditions which affect the hygiene of the home, the school and working-places for young people and fellow women. The Minnesota Federation of Clubs, through its Health and Hygiene Committee, is working effectively to enlist intelligent interest in these matters.

We physicians cannot shift from our shoulders the grave responsibility which must rest there of using our influence so far as possible for the betterment of living and working conditions for all the people in the communities where we live and practice. The proceedings of this Congress should be of great interest to our readers.

We would suggest a trip by the Great Lakes and attendance upon this Congress as a most delightful and profitable fortnight's vacation.

A CORRECT ROSTER!

What we have said in another place concerning the correct spelling of proper names suggests to us the great difficulty experienced by this office and the state secretaries in obtaining correct rosters of the State Associations. We publish annually the rosters of three states, and in spite of every reasonable effort they contain many misspelled names, and will continue to do so until we obtain the co-operation of the men whose names go wrong.

The names are sent by county and district secretaries to the state secretary, and he sends them to us. When we are in doubt as to the spelling of any name, we compare the name with the same in the old roster and perhaps with the directory of the A. M. A., but, not infrequently, the name will be different in each case, and frequently the spelling of a name is wrong in the directory of the A. M. A. and practically everywhere else it appears in print.

We urge each of our readers to examine his name as it appears in the roster of his Association and report to us any mistake found in it.

CORRESPONDENCE

THE PROGRAM FOR THE NEXT MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

To the Editor:

The annual meeting of the Minnesota State Medical Association will be held in Minneapolis early in October. As every member of the Association receives The Journal-Lancet, the Program Committee believes that this medium is a proper one through which to extend an invitation to the members to contribute to the program.

It has been decided to devote the first day of the meeting to the reading of papers and to make the second day a clinic day. This division of the time, we believe, will result in greater interest, and be of more profit to the general

profession than would be the case if all the time were given to the reading and discussion of papers.

Clinics illustrating medical topics of any kind will be acceptable, but, for obvious reasons, operative surgical clinics will not be feasible.

The subjects of clinics and the titles of the papers must be in the hands of the chairman of the committee by August 1st. All members of the Association are invited to contribute.

C. G. Weston,
Chairman of Program Committee,
402 Reid Corner, Minneapolis.

July 8, 1913.

NEWS ITEMS

St. Anthony's Hospital at Bemidji has a pulmotor.

Dr. E. E. Webber has moved from Chisholm to Buhl.

Dr. C. R. Morss has moved from Coleraine to Duluth.

Dr. Rowland Gilmore has moved from Madison to Bemidji.

Dr. E. E. Webber, formerly of Buhl, has located in Chisholm.

Dr. L. A. Johnson has moved from Bancroft, S. D., to Belden, Neb.

Dr. W. M. Beck, of Clarkfield, has been taking a special course in bacteriology in a Chicago laboratory.

Dr. K. O. Knudson, of Sherwood, N. D., was fined $50 and costs ($22.25) last month for practicing without a license.

Dr. C. A. Lester, who recently moved from Alexandria to Winona, will confine his work to diseases of the eye, ear, nose and throat.

Drs. R. C. Swackhamer, of Chicago, and R. E. Spinks, of Williamstown, Mich., have joined the staff of the Adams Hospital of Hibbing.

Dr. John Steinbach of Winona has sold his practice and will retire from the practice of medicine. He will soon move to California.

Dr. L. C. Ingram, of Red Wing, has returned from Philadelphia, where he has been doing postgraduate work in eye, ear, nose, and throat work.

The City and County Hospital of St. Paul treated 849 patients in June. There were 40 births and 44 deaths in the hospital in the month.

Roseau, Marshall, Kittson and Pennington counties are considering a joint tuberculosis hospital under the new law, by which the state will contribute half the cost of the building.

Dr. W. R. Baker, a recent graduate of the State University, has located at Ortonville and has entered into partnership with Drs. Bolsta and Karn. The firm name is Drs. Bolsta, Karn & Baker.

Dr. F. N. Schlutz, of Minneapolis, has returned from a three-months' trip to Europe. He spent his time in the pediatric clinics of Berlin, Kiel, and Paris, continuing investigations begun by him in Europe two years ago.

Dr. E. A. Myerding, the medical school-inspector of St. Paul, has gone east to attend the Harvard summer school for physicians to study the eye and ear. He will visit a number of eastern cities for information in his line of work.

Dr. E. H. Trowbridge, of St. Joseph, Mo., has become a member of the medical staff of the School for the Feeble-Minded at Faribault. Dr. Trowbridge is a graduate of the Department of Medicine of the University of Minnesota, class of '09.

The State Board of Health has been obliged to dispense with the services of Dr. E. B. Hoag on account of a lack of funds. The loss is greatly to be regretted, for Dr. Hoag's work has been peculiarly effective and equally beneficial to the people.

Beginning on July 1st the public drinking-cup became unlawful in Minnesota. This refers to the cup offered the public for drinking water, and not, as some may suppose, for drinking beer, wine, or whiskey. On July 6th public drinking-cups were still found in the public parks of Minneapolis.

The following physicians who have been internes or assistants at the Mayo Clinic for the past year will begin practice: Dr. Justus Ohage, Jr., has located at Dickinson, N. D.; Dr. G. I. Boyden, at Pendleton, Ore.; Dr. Frank Hall will locate in Illinois; Dr. Hugh Willson is looking over the Pacific coast, and Dr. D. B. Baker goes to Boston.

During the absence, in February, of the one who has charge of this department of The Journal-Lancet, an item appeared stating that the Belle Fourche (S. D.) Hospital, formerly the Green Cross Hospital, had been reopened. The statement was true, but, unfortunately, the man

in charge of the hospital has a very unsavory reputation.

Dr. Taliaferro Clark, the federal expert, made his report on trachoma to the State Board of Health last month. He recommended that the disease be made reportable and quarantinable, and that free treatment and free services of visiting nurses be furnished when necessary. With proper inspection of school children and like measures, the disease can be stamped out.

Dr. C. E. Dutton, Health Commissioner of Minneapolis, will endeavor to bring about perfect co-operation between his department and the medical inspector of schools. To save time and expense he suggests that when a pupil is suspected of having a contagious disease the medical inspector should take the necessary steps to determine the fact, instead of calling upon an inspector of the Board of Health.

Physicians in Minnesota are hereafter (beginning July 1st) to report all cases of occupational diseases treated by them. The report goes to the State Commissioner of Labor. It seems unfortunate that the passage of such a law should be accompanied by the failure on the part of the legislature to provide funds for the continued services of the state's special agent whose duty it was to enforce the reporting of vital statistics.

North Dakota has a law prohibiting the marriage of any man or woman who is feeble-minded, an imbecile or epileptic, insane, a common drunkard, or is afflicted with tuberculosis in the advanced stage. A further handicap is put on the male, for he may have no venereal disease. A rider to this law provides that a physician may not charge over two dollars for issuing a certificate to this effect, the same to be duly sworn to.

Dr. W. J. Marcley, of the State Tuberculosis Commission, is reported in the daily press to have said before the State Board of Health that thirty-one counties in Minnesota have applied for state aid in building county tuberculosis sanitariums. Dr. Marcley said that there are thirty-one counties in the state amply able to build sanitariums. As a matter of fact, only half that number of counties are giving the matter consideration, and no action can probably be expected in any county unless wideawake physicians compel it.

The Ladies' Auxiliary of the South Dakota State Medical Association elected the following to office at their annual meeting: President, Mrs. H. T. Kenney, Pierre; first vice-president, Mrs. H. M. Freeburg, Watertown; second vice president, Mrs. F. N. Minty, Rapid City; third vice-president, Mrs. H. J. G. Koobs, Scotland; secretary-treasurer, Mrs. B. A. Bobb, Mitchell. The ladies of the Auxiliary were royally entertained by the wives of the physicians and the citizens of Vermillion, where the annual meeting was held. There were auto rides, a reception, a banquet and an afternoon tea given by the ladies of the faculty of the University and city. The meetings are proving to be very popular and are creating a bond of fellowship between the wives of the doctors of the state.

AMBULANCE FOR SALE

A hospital ambulance in good condition is offered for sale cheap for cash by the Northwestern Hospital, Minneapolis. Call upon or address N. W. Hospital for further information.

LOCATION WANTED

In Minnesota or North Dakota by competent Minnesota graduate with four years' general practice. Will consider a partnership, or will exchange present mining contract location, or will buy a suitable general practice. Address S. C., care of this office.

PRACTICE FOR SALE

Country practice in live railroad town in southern Minnesota, 95 miles from Minneapolis. Collections, 99 per cent.; average practice for nineteen years, $2,500 cash per annum. County physician and insurance appointments can be transferred; free office rent. Price for office fixtures and introduction, $300 cash. No competition. Address G. H., care of this office.

OFFICE FOR RENT

In Pearce-Walton Building, Minneapolis, 9th and Nicollet, corner suite of two rooms, toilet and 6x8 ft. storage closet. These are large, pleasant front rooms on 2d floor with large plate-glass windows in both rooms. Arranged specially for doctor's office. Rent reasonable. Plymouth Investment Co., 827½ Nicollet Ave., Minneapolis.

FOR SALE

One Little Wonder Air-Pump, 1 No. 2 Globe Air-Tank, 1 No. 59 Globe Multinebulizer, 1 Phillips Office-Table, 1 Combination Writing-Desk and Book-Case, 1 Pynchon Adjustable Chair, 2 Irrigators, 1 Phillips Century Controller, 1 Urinalysis Cabinet. Will be sold cheap, 403 Syndicate Building, 519 Nicollet Ave., Minneapolis.

OFFICE FOR RENT

A doctor and dentist wants a good man to share waiting-room. Can get one or two private rooms. Inquire 403 Syndicate Building, 519 Nicollet Ave, Minneapolis.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF APRIL, 1913

REPORTED FROM 82 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432																
Albert Lea	4,500	6,192	10	1														2
Alexandria	2,681	3,001	1															
Anoka	3,769	3,972	6	2			1									1		
Austin	5,474	6,960	12	2	1													1
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	6						1									
Benson	1,525	1,677	4															
Blue Earth	2,900	2,319	1															
Brainerd	7,524	8,526	10		2	1												1
Breckenridge	1,282	1,840	2			2												
Canby	1,100	1,528	1													1		
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	0															
Chatfield	1,426	1,226	2	1														
Cloquet	3,074	7,031	6	1														
Crookston	5,359	7,559	13													2		3
Dawson	962	1,318	2			2												
Detroit	2,060	2,807	8				1											
Duluth	52,968	78,466	92	5	3	9		2	1					1	1	6		6
East Grand Forks	2,077	2,533	3															
Ely	3,572	3,572	5									1						1
Eveleth	2,752	7,036	7			1			2						1			
Fairmont	3,440	2,958	2			1												
Faribault	7,868	9,001	10			3										1		1
Fergus Falls	6,072	6,887	7	1	2													1
Glencoe	1,788	1,788	3															
Granite Falls	1,454	1,454	2															1
Hastings	3,811	3,983	2			1												
Hutchinson	2,495	2,368	1															1
International Falls		1,487	3	1														
Jordan	1,270	1,151	1													1		
Lake City	3,142	3,142	2															
Le Sueur	1,937	1,755	4			2												
Little Falls	5,774	6,078	4			2									1			
Luverne	2,223	2,540	4	1														
Madison	1,336	1,811	4	1		1												
Mankato	10,559	10,365	17		2	2									1	1		1
Marshall	2,088	2,152	1		1													
Melrose	2,591	2,591	4															
Minneapolis	202,718	301,408	317	39	8	31	2	11	1				1	2	7	18	2	19
Montevideo	2,146	3,056	3															
Montgomery	979	1,267	2															1
Moorhead	3,730	4,840	11		1				4									
Morris	1,934	1,685	2	1														
New Prague	1,228	1,554	2															
New Ulm	5,403	5,648	4													1		1
Northfield	3,210	3,215	5															
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	4													1		
Pipestone	2,536	2,475	2			1												
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	12			1									1			1
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	2															
Rochester	6,843	7,844	21	2	3	1										5		
Rushford	1,100	1,011	3															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	17		1											2		1
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	235	27	6	19	6	8	3		3			1	4	20	1	12
St. Peter	4,302	4,176	2															
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	3															
Sleepy Eye	2,046	2,247	1													1		
South St. Paul	2,322	4,510	5			1										1		1
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	7	1												1		
Thief River Falls	1,819	3,174	1													1		
Tower	1,111	1,111	0															
Tracy	1,911	1,826	3															
Two Harbors	3,278	4,990	5	1											1	1		
Virginia	2,962	10,473	12	1		5			1						1			2
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	1															
Waseca	3,103	3,054	5	1		2												1
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	2	1					1									
Willmar	3,409	4,135	3			1										1		
Winona	19,714	18,583	22	1					1				1			1		2
Winthrop	813	1,043	2	2														
Worthington	2,386	2,385	3			1												

REPORTED FROM 54 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	1	1														
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	3															1
Biwabik		2,690	4			3												1
Bovey		1,377	1			1												
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	2	1														
Chisholm		7,684	7			2									2			1
Coleraine		1,613	0															
Delano	967	1,031	2															
Farmington	733	1,024	1															1
Fosston	864	1,055	0															
Frazee	1,000	1,645	2			1												
Glenwood	1,116	2,161	0															
Grand Rapids	1,428	2,239	3															
Hibbing	2,481	8,832	9		1	2												
Jackson	1,756	1,907	1															
Janesville	1,254	1,173	1															
Kenyon	1,202	1,237	1		1													
Lake Crystal	1,215	1,038	5			1												
Litchfield	2,280	2,333	2															
Long Prairie	1,385	1,250	1															1
Madelia	1,272	1,273	2															
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	1				1											
Nashwauk		2,080	1															
North Mankato	939	1,279	2			1												
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	1													1		
Park Rapids	1,313	1,850	1			1												
Pelican Rapids	1,033	1,019	2															
Perham	1,182	1,376	2			1												
Pine City	993	1,258	0															
Plainview	1,038	1,175	2															
Preston	1,278	1,193	1	1														
Princeton	1,319	1,555	7	1		1										1		
St. Louis Park	1,325	1,743	2	1												1		
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	3	1														
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	3													1		1
Spring Valley	1,770	1,817	0															
Wadena	1,520	1,820	1															
Wells	2,017	1,755	*															
West Minneapolis	2,250	3,022	4														1	
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	0															
Windom	1,944	1,749	0															
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			0															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			8	4														
Fergus Falls, Hospital for Insane			23	8		1	2							1				1
Hastings, Asylum			0															
Minneapolis, Soldiers' Home			2															
Owatonna, School for Dependents			1			1												
Red Wing, State Training School			0															
Rochester, Hospital for Insane			12	2														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			4															
St. Cloud, State Reformatory			0															
Stillwater, State Prison			2		1													
OTHER PARTS OF STATE			795	56	26	80	19	6	21	2	10	4		4	32	42	5	37
Total for state			1923	169	59	186	32	27	36	2	13	5	2	9	52	113	9	104

*No report received. Registrar not doing his duty.

120 stillbirths not included in above totals.

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HAY FEVER

As the season for the prevalence of this distressing malady is near at hand, we wish to call the attention of our readers to the bacterial vaccines, which, experience has shown, will at least modify the effects of hay fever, if they do not cure the disease entirely.

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PLASMODIAL ANEMIA

In spite of the modern theory of the etiology of malaria and malarial affections (mosquito-borne infection) this plasmodial disease continues to be rife in certain sections of the country and bids fair to be, like "the poor," "always with us."

Every physician of experience appreciates the principles which should guide him in the treatment of the various acute manifestations of paludal poisoning, i. e., the destruction of the plasmodial hosts which have invaded the blood and which, if not eliminated, consume and destroy the red cells, the vital element of the circulating fluid.

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must be superior in several respects to that of the home of the patient. The climatic conditions, the scenery, and the management of the institution are factors of environment that, when ideal, make for rapid improvement in the patient.

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THE
JOURNAL-LANCET

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THE TEACHING OF HYGIENE AND PREVENTIVE MEDICINE IN MEDICAL SCHOOLS*

By JOHN L. HEFFRON, M. D.
Dean of the College of Medicine of Syracuse University
SYRACUSE, N. Y.

MR. PRESIDENT AND GENTLEMEN:

Your committee will first report on what is being done in the department of hygiene and preventive medicine in the medical schools of Class A; secondly, deduce conclusions concerning what is considered a competent course for students in the regular course in medicine; and, thirdly, discuss this field of work as a specialty and the necessary preparation for it.

To ascertain the nature and scope of the work now being done, the following questionnaire was sent to every college in Class A:

Please indicate as fully as possible answers to the following questions:

1. SYSTEMATIC COURSE—LECTURES & RECITATIONS.

How much time, in hours, do you give to the following subjects:

(a) Organization of public-health work.
(b) The function of municipal, county, state, and national laboratories.
(c) Infectious diseases.
(d) Medical inspection of public schools.
(e) Quarantine and disinfection.
(f) Methods of protecting employees against accidents, fire, and so-called industrial diseases.
(g) Methods pursued in management of epidemics.
(h) Examination of water, location and care of water supplies.
(i) Methods of sewage and garbage disposal.
(j) Local, state, and federal methods of food-inspection.
(k) Collection and uses of statistics.
(l) Building, plumbing, lighting, heating, and ventilation inspection.
(m) Military and naval sanitation.
(n) Personal hygiene.
(o) Modes of infection.
(p) Insect-borne diseases.
(q) Prophylaxis in communicable and malignant diseases.
(r) Heredity.
(s) Immunity.
(t) Resuscitation.
(u) Total number of hours given to this work.

2. CLINICAL AND FIELD WORK.

What facilities have you for instruction in the following subjects, and how much time do your students give to the work?

(a) Laboratory work as carried on in municipal and state laboratories, including examinations of sewage, water, ice, milk and air, and diagnostic bacteriological examination.
(b) Clinical work on infectious cases, as diagnosis, vaccination, use of antitoxins, etc.
(c) Medical inspection of public schools.
(d) Fumigation and disinfection.
(e) Sewage and garbage disposal.
(f) Building inspection, street cleaning.
(g) Inspection of production and distribution of milk and other foods; cold storage.
(h) Statistics.

3. Do you require a text-book? If so, whose?
4. In what year of the course is this subject given?
5. Is there any phase of this subject on which, by location or other circumstance, your department lays special emphasis?
6. What is your official title?
7. Remarks:

It is realized that this questionnaire is not easily answered categorically, but, because a course in hygiene and sanitation, by whatever name it may be designated, is recognized by

*Report of the Committee on Teaching Sanitary Science in Medical Schools, read before the American Academy of Medicine at Minneapolis, June 13, 1913.

state boards of medical examiners as an independent subject for examination, and to reach all schools in this class, it seemed necessary to outline some such questionnaire. In its preparation the Committee had the help of men recognized as authorities in this subject in different parts of the country.

Answers were received from the following Medical Schools:

Albany, Bellevue, Buffalo, University of California, Chicago University, Cincinnati, Columbia, Cornell, Harvard, Johns Hopkins, Kansas, Louisville, Michigan, Minnesota, Northwestern University, New York Homeopathic, University of Pennsylvania, University of Pittsburgh, College of Physicians and Surgeons, Ill., St. Louis, Leland Stanford Jr., Syracuse, Texas, Tulane, University College of Medicine, Va., University of Virginia, Western Reserve, and Yale.

The answers were all full and contained valuable data. Several writers mentioned the difficulty of adapting their classification and arrangement of subjects to those of the questionnaire. There was some opportunity for misunderstanding in reporting the hours given to the several subdivisions of the course; and in some instances all the hours given to bacteriology in the regular course were put down, while it was expected that only bacteriological differential diagnosis work would be listed.

From the replies it is evident that all the colleges reporting have a systematic course with lectures and that several have considerable practical work.

The average number of hours reported as given to the systematic course by the colleges answering this specifically is fifty. This large average is due to the fact that one college, Cincinnati, reported 150 hours; another, Albany, 90; another, Buffalo, 66; another, Chicago, 64. The average number of hours in the systematic course reported by the colleges other than these is about thirty-five.

Most of the topics specified receive some attention, though the amount of time varies considerably. The reasons for this are, first, because of locality certain subjects seem to require especial study, as, for example, tropical diseases at Tulane; and, second, because there is not unanimity concerning the relative importance of the topics mentioned in the questionnaire, as, for example, but three report upon resuscitation, but five on heredity, four on military and naval sanitation, and eight on the organization of public-health work.

In three schools, namely, those at Cincinnati, Louisville, and Syracuse, there is complete cooperation with the department of public health of a municipality, and the courses are in charge of a man who has a position in the city health department, and other men in the department are clinical or laboratory instructors or take a part of the systematic course. In these schools the practical and field work is obligatory.

Cincinnati reports 240 hours given to this work in thirty-two days.

Louisville reports that senior students in groups of six are sent to the office of the department of public health for four hours a day for one week, "where they take an active part in all the work of the department."

Syracuse reports ninety hours of practical work for each senior in the mornings of five weeks. The practical work is done in the municipal laboratories and hospitals and in field-work with various officers in the department of health.

Seven mornings are devoted to laboratory examination of sewage, water, ice, milk and air, and to bacteriological differential diagnosis. Six mornings are devoted to clinical work in infectious diseases in the City Hospital for Contagious Diseases, where the student serves as a clinical clerk and is for that time a unit in the hospital system or in clinical differential diagnosis in cases visited by the city physician. Five mornings are spent in the medical inspection of public schools; three mornings, in quarantine, fumigation and disinfection; two mornings, in the inspection of the disposal of sewage and garbage. Four mornings are devoted to the production and distribution of milk, the inspection of meat and other foods, and to cold storage; and, finally, two mornings are given to the Bureau of Statistics.

Bellevue's practical work is voluntary and not considered desirable in the regular course for the degree of M. D.

Buffalo reports twenty-nine hours of practical clinical work in infectious diseases.

Columbia does not consider practical work desirable in the undergraduate course, but "indicates where the students may study detailed methods if they care to pursue public-health work as a special calling."

Cornell reports sixty hours in laboratory examinations and in clinical work in infectious diseases, but has no inspection or field-work.

Voluntary excursions for the inspection of the activities of municipal and state departments of public health are conducted by Harvard.

Johns Hopkins reports sixty hours of laboratory work in "two years of clinical work in infectious diseases," evidently meaning that in the two years of clinical work the transmissible diseases encountered are made use of for instruction as, indeed, they are in every school. "Every Saturday is given to inspection of water sheds, filtration-plants, model dairies, pasteurization-plants, municipal, state, and federal laboratories of hygiene."

This is believed to be the first course of the kind in the country.

Northwestern tells students where the public works are and advises them to visit them, but does not follow up the work.

Tulane reports one hundred and forty-four hours of clinical and field-work. "Under laboratory work especial attention is paid to mosquito work and to diagnosis of pathogenic protozoa. In the senior year students have additional laboratory and clinical work in tropical medicine.

Western Reserve "requires a thesis on some assigned subject in preventive medicine, which is read before the class and discussed. Each year part of the theses are based on the current reports of contagious diseases in Cleveland and are presented in a sort of symposium, first, before the class, later, before the medical society by the same students."

Several replies refer to the desirability of practical laboratory, clinical, and field work, but express regret that no satisfactory arrangement for such co-operative courses have yet been made with the local health department. Some say that it is a question whether such work should be demanded in an already overcrowded curriculum; and a few question the value of such work for those in the regular medical course.

In the report to the Council on Education of the American Medical Association, in 1909, of the Committee of One Hundred on a Medical Curriculum the course in hygiene and public health is carefully discussed. Specific recommendations under twenty-two heads are made. The course, as boiled down, covers one hundred and twenty hours, and while the articulation with this course of the courses in bacteriology, pathology, internal medicine, pediatrics, chemistry, and dietetics, is arranged for, the emphasis is put on the importance of special bacteriological differential diagnosis and clinical work in infectious diseases, and a large amount of inspection under proper leaders.

It is to be understood, of course, that in every college almost every department must touch upon some phase of the subject of hygiene, sanitation, preventive medicine, and public health, and that particularly in physiology personal hygiene is taught; in bacteriology and pathology the etiology and prophylaxis of infectious diseases receive attention; in physiological chemistry and pharmacology the question of pure foods and pure drugs must be discussed; and that, in the systematic courses in medicine, surgery, obstetrics, pediatrics, and psychiatry and in the various specialties, preventive measures receive consideration. In such courses very many of the topics listed are legitimately and of necessity considered. This should be encouraged, and the necessity for such work should be emphasized, particularly in the courses conducted by specialists.

But this is not enough. There must be recognized in every college a department of preventive medicine and hygiene, the course in which shall review and correlate the knowledge acquired in the various departments and put it to the laboratory test of practical bacteriological, clinical, and field experience. If hospitals under college control and with well-equipped laboratories for diagnosis are considered essential for the proper teaching of clinical medicine and surgery—and that is conceded—it is certainly as necessary for the college to have the use of all the means used by a municipality for the preservation of health and for the prevention and control of contagious and communicable diseases.

We have had full experience with the difficulties presented by an overloaded curriculum, but they should not be insurmountable. If it be the first duty of a college to fit its graduates to care for the people entrusted to them, that object must be kept constantly in view. The object in anatomy is not to make an anatomist; a lifetime is not too long for that. The same is true in every fundamental laboratory subject, as it is in medicine, in surgery, and in all the surgical specialties, but no student should leave a college without mastering the essentials of every one of the fundamental subjects of medicine. To do this best the laboratory method has been carried forward into the clinical years, and it is most essential that it be recognized in this the most important subject of them all.

To fit our students best to assume such responsibility, we must recognize that today the greatest emphasis is put upon the preservation of health and the prevention and control of disease; and, while no college should attempt, in the regular course, to make expert sanitarians

and public-health officers, every college should graduate men who are sufficiently educated in these subjects to co-operate intelligently with health officers, to estimate accurately local health conditions, to advise soundly those consulting them on these conditions, and to aid in educating the people in health matters. If a curriculum for the student in the regular course is built upon these principles, there will be room enough for a competent course in preventive medicine and hygiene.

We believe that the majority of our correspondents agree that such a course should include a systematic lecture course of not less than thirty hours, in which the head of the department shall review and correlate the knowledge of bacteriology, pathology, hygiene, and preventive measures which have been learned in other departments, and in which lectures on the most important subjects shall be given by experts from federal, state, and municipal departments of public health. Amongst these lectures it is urged by many that especial attention should be given to a clear exposition of the health laws and to the relation of physicians to the department of public health and to the importance of statistics. Besides the laboratory work and the clinical work done in the regular course, it is considered that at least eighty-five hours of special laboratory, clinical, and field work under competent instructors should be required.

In the olden times hygiene was classed with physiology and was given in the second year. Four of our correspondents still give it in the second year, when a man is not supposed to know much about diseases, preventable or otherwise. Eleven give it in the third year, thirteen in the fourth year, and some in both. Your committee believes that this course should crown the work of the four years and that therefore it should be given in the senior year, and that the systematic lectures should be given in the second semester.

There is a variety of names used to designate the course. The state boards of examiners for license to practice medicine are not unanimous in the designation of this course. The course outlined in the curriculum prepared by the Council on Education of the American Medical Association is called "Hygiene and Public Health." The colleges in New York State use the term "Hygiene and Sanitation," as it was first named by the State Board of Examiners. Harvard calls it "Preventive Medicine and Hygiene." It would be well for the National Association of State Medical Examiners to adopt a uniform term for this course, and for colleges to recognize their decision.

The head of the department is variously designated by the colleges replying. It seems to your committee that in whatever department the man at the head of this course does his special work, he should be designated as "Director of the Department of So-and-So," for there should be recognized a department head.

III. Our country has been slow in making adequate provision for the conservation of the health of her citizens. Except in a few instances the health-office of a community has been given out as a political plum. There have been no tenure of office and no pay commensurate with the service that should be required. Because of this there has been no inducement to men of the best ability to choose this work as a specialty. But it seems as if this order of things was near its end. New York State has just passed a bill reorganizing the health department of the entire state, and the Governor has signed the bill. By the provisions of this bill it will be necessary to have trained men who give their entire time to this work in all health districts. Michigan has a bill before the legislature demanding that all cities of 18,000 and over shall have trained health officers who shall devote all their energies to such service. Similar demands are under discussion in other states. This indicates that public opinion is being formulated and that the time is near when all of the states will demand that human health, the biggest asset of every state, shall be safeguarded. When that day comes, public-health service will be the most alluring field for special work. Special provisions for the training of such men must be made and university medical schools must be ready for it.

Several schools already have admirable courses well adapted to fit a graduate in medicine for the position of health officer. By the time there is a legitimate demand for the multiplication of such facilities, the experience of Harvard, of Pennsylvania, of Johns Hopkins, and of others will be available for the guidance of those universities having both medical schools and schools of engineering, which are but waiting for the demand to inaugurate special post-graduate courses in hygiene and public health.

SURGICAL TREATMENT OF HYPERTHYROIDISM*

By Charles Nootnagel, M. D.

MINNEAPOLIS

In order to get people to consent to an operaton, and especially to an early one before the symptoms present a serious aspect, we must bring forth arguments and facts to convince them of its necessity. To do this, we must first look up the statistics of the cases observed and, secondly, draw conclusions from our own experience.

Under all forms of treatment, except surgical, about 25 per cent of the patients succumb to the malady, and the remaining 75 per cent recover partially, i. e., they are invalids for the rest of their more or-less shortened lives with the exception of a very few who enjoy comparatively good health.

With early surgical treatment, i. e., as soon as we can induce the patient to undergo operation, which is not always soon, there is a mortality of 3.5 per cent; 70 per cent of complete recoveries, as far as the existing degenerations will permit; 20 per cent much improved (usually in these the preoperative degenerations preclude a better result); and about 5 to 6 per cent complete failures or recurrences.

My limited experience compels me to advise early operation in all beginning cases. The only thing to be lamented is the fact that these people, with rare exceptions, will not permit early surgical interference.

Hyperthyroidism is produced by an increased amount of thyroid secretion being absorbed. The increased secretion may be produced, first, by a true hyperplasia of the thyroid gland; second, by a reduplication of the lining of the acini; and, third, by pressure from pathological conditions within the thyroid. No matter how the increased absorption is brought about, the resulting symptoms are the same, but the surgical means employed for its relief differ.

In the early period of surgical treatment of this disease, only the very extreme cases were subjected, often hurriedly and without proper preparatory treatment, to the knife with an almost prohibitive mortality, and not a commensurate improvement, if the patient was fortunate enough to survive, owing to the degenerative changes which had occurred in many of the important organs of the body. Since the importance of these degenerations has been better and more fully recognized and understood, early operation has been strongly urged and consented to in this country. In England operation is only advised and executed in late and extreme cases with a mortality of 50 to 60 per cent and no complete recoveries.

There are many cases which recover without surgical intervention by means of all kinds of treatment, or in spite of all treatment, but, I think I may say, always with some degeneration in the heart, liver, kidneys, nervous system, ovaries, or spleen. I have yet to see the case of hyperthyroidism cured non-surgically without manifesting some or all the degenerations above enumerated. Therefore, providing the case is not already too far advanced, early surgical interference is the only course we should advise for our patient after the diagnosis has been established. I think the ultimate results of an early operation in this condition will compare favorably with those of an early operation for appendicitis. Who of the older confrères here present has forgotten the lengthy pros and cons of an early operation for appendicitis; but since the early operation has prevailed our mortality has been markedly reduced and the complete recoveries immeasurably increased, and a like condition will prevail in regard to early operation for hyperthyroidism. Even after marked degenerations have occurred, wonders are effected by surgical intervention, although complete restoration of health is out of the question.

To illustrate this I wish to cite some cases:

Mrs. N., a middle-aged married woman, seen in consultation for marked mental aberration, showing all signs and symptoms of hyperthyroidism for a period of nine months, was subjected to excision of part of both lobes early last spring. She is now very much stronger, has increased about eighteen pounds in weight, and her mental condition has, to all appearances, disappeared. Her heart still shows enlargement and muscular weakness.

Mrs. K., a married woman, aged 65, showed signs of hyperthyroidism with marked tachycardia for years and of late marked mental clouding. Excision of part of both lobes was followed by mental recovery in three months and an almost normal pulse. This case shows plainly that hyperthyroid toxemia may produce tachycardia without producing much myocardial degeneration.

Miss S. L., aged 19, presented marked signs of hyperthyroidism for past year. Status presens: Pulse, from 180 to 200 and over per minute; marked exophthalmus; tremor; all the eye symptoms; diarrhea; sweats; reduction in weight; great loss of strength; loss of hair; etc. Excision of two-thirds of both lobes ended in recovery

*Read before the Hennepin County Medical Society, November 6, 1912.

with the exception of the heart, which showed permanent myocardial degeneration.

If these cases had been operated on before the advent of cardiac degeneration, the recoveries would have been complete.

The choice of operation depends on the form of the disease present and the condition of the patient. If there is but slight thyroid enlargement, or apparently none, ligation of both superior thyroid arteries, with accompanying veins or all four thyroid arteries and veins, is indicated. This produces a transient thyroid atrophy with hypofunction and a complete or partial disappearance of all symptoms. In many cases of ligation the symptoms reappear, sooner or later, and excision must be done. Personally, I would not recommend ligation in these cases.

In cases of hyperthyroidism produced by pressure from within by adenomata, cysts, or colloid nodules, excision or enucleation of these will usually suffice to eradicate all symptoms.

Last, but not least, we come to the true hyperplasias. If the patient's physical condition warrants it, excision of two-thirds of both lobes is indicated. If the patient is too reduced or degenerations have advanced too far, ligation of some or all of the thyroid vessels may be resorted to, in order to put the patient in a proper condition to bear the operation of excision. All patients with marked tachycardia, restlessness, and general weakness should be put at absolute rest for varying periods of time, depending on the amount of improvement, before being subjected to operation. We must also bear in mind that an enlarged thymus is frequently present in these cases and bears some mysterious relation to the ultimate recovery. If an enlarged thymus is diagnosed before operation, it should also be removed to insure a complete and speedy recovery.

Section of the cervical sympathetic has been advocated, and also practiced in a number of cases, but has fallen into innocuous desuetude.

Of late, pathological conditions in the female pelvis have been accused of being a causative factor in producing hyperthyroidism, and, with this in view, have been corrected with a resultant amelioration of symptoms, according to its sponsor. I cannot speak from personal experience for or against this causative factor except that it cannot obtain in the cases of men affected by this malady.

The choice of local or general anesthesia seems to rest with the individual operator, as the mortality seems to be the same for both, judging from the records of large clinics. Kocher, the real father of thyroid surgery, uses, almost exclusively, local anesthesia. Many of his followers have attempted to do likewise in different countries, but were met with such strenuous opposition on the part of their patients that general anesthesia has become the rule outside of Switzerland.

In cases where the cartilagenous rings of the trachea have wholly or partially disappeared through long-continued pressure, predisposing to tracheal collapse, local anesthesia should be employed. For general anesthesia, ether is the universal agent used. Chloroform should not be employed on account of the damaged condition of the heart-muscle. Nitrous-oxide anesthesia is of too short duration to be desirable. For ether anesthesia the patient should be placed in a reverse Trendelenburg position.

Before proceeding to give details of operative technic, I wish to mention three conditions: perithyroid adhesions, displacement of neighboring organs and supernumerary thyroids, and anomalous position of gland, frequently met with and always increasing the difficulties and dangers of the operation. By carefully examining the patient, these three conditions, as well as probable tracheal collapse, can usually be diagnosed before operation.

The preparation of the patient for operation is the usual one for capital operations. What I wish to emphasize especially is the scrupulous cleansing of the field of operation and the draping of the patient. We should pay special attention to protect the field of operation from any contamination from the patient's face and the anesthetist's hands.

If local anesthesia is used, the line of incision is infiltrated with one-half of one per cent cocain in normal salt solution, or one-half per cent novocain in normal salt solution. One to two grains of cocain or five grains of novocain can be used in the solution injected. Two minutes after the injection the operation can begin.

In making the incision the natural folds of the skin should be followed as much as possible, in order to insure the most perfect cosmetic result. Muscles rarely need be cut, but if this should become necessary they should be cut at a higher plane than the skin incision.

The different steps of the operation need not detain us here, as they can be found much better described in good text-books on surgery than I can possibly give them, but I wish to mention a

few things which facilitate the operation considerably and add to the cosmetic result.

1. In order to minimize the hemorrhage during the excision of part of the gland, I first ligate the superior and then the inferior thyroid arteries in the following manner: after dislocating the gland from its bed, I elevate the apex of the gland on my index finger, locate the superior thyroid artery by palpation, pass a curved round needle, armed with a ligature, around the apex, and tie the vessels and gland *en masse*. Then I introduce my index finger under the outer lower edge of the gland, turn this over as far as possible, locate the primary branches of the inferior thyroid artery by palpation or sight, pass a curved round needle armed with a ligature deeply through the thyroid gland from one side of these primary branches to the other, and ligate vessels and gland tissue *en masse*. This avoids the recurrent laryngeal nerve absolutely, and insures an almost bloodless excision, and permits us to leave in the posterior third of the gland with its all important parathyroids.

2. In order to insure a good cosmetic result, the platysma, fat, and fascia are united carefully by a running suture introduced in the following manner: a round curved needle with ligature is passed through these tissues as usual and tied, and then the needle is carried from below these tissues up to the skin, emerging just at its edge, then the needle is again carried to the bottom of the wound on the opposite side going up through the tissues and emerging again at edge of skin. This is repeated until the entire wound is closed. Then the skin is sewed by a continuous overcast stitch, two layers of gauze applied over the entire incision, saturated with collodion, and thick gauze dressing applied while the collodion is still fluid. The above stitch holds the superficial tissues in better and closer apposition and relieves the strain on the skin suture. The collodion acts as a splint and holds the edges of the skin absolutely quiescent during the time of healing. Ten days after operation the dressing should be removed.

Iodized catgut is used throughout the operation.

Drainage through a stab-wound should be used after every excision for hyperthyroidism.

The edges of the fibroid capsule should be brought together by a running suture over the raw glandular surface except at its very lowest point, where the drainage-tube should enter.

Where the drainage-tube emerges from the skin a separate dressing should be applied so that it can be changed at any time when it becomes saturated with wound secretion without disturbing the dressing over the original incision.

I have purposely omitted to speak of excising part of one lobe and tying the other superior thyroid artery as the operation of choice, because when one whole diseased gland is left, hyperplastic growth may continue in this more easily than would be the case if part of it had also been removed. The additional time consumed in excising part of the second gland after tying its superior artery would be so short that it becomes a negligible quantity.

THE THERAPY OF HYPERTHYROIDISM*

By H. A. H. Bouman, M. A., M. D.

Minneapolis

There is a great deal of confusion about the management of a case of Graves' disease. On the one hand we have the earliest possible surgical interference praised; on the other, we hear that patients have made splendid recoveries after the use of certain medicines. We also hear how splendid are the mechanical measures, such as the x-ray and massage. Some say that patients get well in spite of treatment; and, indeed, there are those who claim that their patients had no treatment and got "well." It is not strange that each, in his way, is right, because each has truth in his case to back him.

We have been keeping strictly, quoting Dr. L. B. Wilson, to the teaching that simple goiter and exophthalmic goiter are two distinct entities; yet they change often from one to the other in the same individual. Halstead (Wilson) has shown that the excision of a portion of the thyroid in dogs results in a compensatory hypertrophy of the remainder of the gland. When nature, in a similar way, cuts off the absorption of secretions from a portion of a gland, there results, not infrequently, a compensatory hypertrophy of another portion. Histologically, there is either a multiplication of new acini, or there is an increase of parenchyma in the existing acini.

*Read before the Hennepin County Medical Society, November 6, 1912.

(Wilson.) This compensation must be properly balanced, otherwise the system suffers, and symptoms arise. Clinically, a case of Graves' disease is one of enlarged thyroid with signs of too much absorbed thyroid secretion. Simple goiter is one with enlarged thyroid without such signs. (Wilson.)

Histologically, simple goiter shows acini whose walls are either stripped of parenchyma or lined with thin, flattened, feebly staining epithelium, and whose contents are not absorbable.

The Basedow's goiter shows a large amount of intra-alveolar parenchyma and reduplication of vigorous epithelium and infolding of the acinal walls; and there is present a large amount of absorbable secretion. If this pathological process continues, and the patient lives long enough, a state of simple goiter will likely be reached, and even hypothyroidism has been seen. Dr. Wilson made a painstaking study some time ago of several hundred cases operated on by Dr. Charles Mayo, which revealed that the clinical picture could be given by pathological findings in at least 80 per cent.

1. In the acute cases, mild, moderate, severe, and very severe, the gland had increased in size and there was lesser or greater or a very great increase of intra-alveolar parenchyma and small and large amount of thin secretion.

2. The cases that had been severe and at the time of examination had remission of symptoms, had the same histology, with slight degenerative changes added.

3. The cases previously severe, but now presenting damaged vital organs, had again the same histology, with marked degenerative changes and connective-tissue increase.

4. The milder continuous cases showed the histology of an adenomatous gland.

5. There are also the patients with pseudo-hyperthyroidism and the iodine cases to be thought of. In the pseudoforms we have cysts, or, it may be, rest-tumors, encapsulated and growing within the gland, causing pressure, forced parenchyma-absorption, and loading of the circulation with too much absorbable secretion, the clinical symptoms differing only in degree, calling none the less for relief, to prevent vital-organ damage. Iodine, and the physician that gives it, in some of these cases forces nature into despair. The dam it had built to hold the secretion is too suddenly swept away by means of stimulated absorption, and the circulation is flooded.

That these patients present varying and often perplexing clinical pictures is not to be wondered at. Seventy-two symptoms have been enumerated. Two factors stand out clearly:

1. The secretion made and absorbed.
2. The effect of it on the organism.

To speak of active and passive symptoms seems rational,—active when the gland is still abnormally producing, and passive when it has ceased, and we have before us the vital organ-lesion.

To some patients we can promise a cure and to some only more or less relief. By *cure* we mean reduction of tachycardia with a normal heart, cessation of secretory and nutritional disturbances, return of the normal blood-picture, and disappearance of nervousness and tremor, and that the patient, upon the whole, is again on a working basis.

By relief we mean marked change for the better, the general health improved and the single symptoms reduced. Patients who have been poisoned by their thyroid secretions for a long time, and have thereby suffered degeneration of the vital organs, cannot be promised a cure. The heart, the eyes, the blood, the nervous system, and the kidneys will readily give us their evidence. Of the changes of other organs we cannot judge as well, though we are certain of its deleterious effect on the generative organs.

Dr. Weisphening (*Beit. zur klin. Chir.*) in a study of operative results of 35 cases from Kummel, calls attention to the importance of the blood-picture for detecting hyperthyroidism in an early stage and for sifting out the grave cases. An early operation, he declares, not only offers the best chances for a successful outcome, but it may be regarded as harmless before the organism has been suffering too long from the toxic influences emanating from the thyroid. Landstrom, of Stockholm, Hildebrand, and, most of all, Kocher and Mayo, and even the famous internists, Mobius and Kraus, give surgery the first place. Kocher asked the profession at Munich not to embarrass the surgeon with the bad cases, but to come early.

Of all the other measures of treatment, rest is the most important,—complete, rigid physical rest in bed. Often this is impossible unless the doctor looks into the patient's surroundings and helps to bring about psychical well-being also. With tact and ingenuity many troubles may be adjusted. An ice-bag on the neck has been lauded. Bromides have been said to do good. A Chicago physician praised quinine hydrobromate highly, claiming that it even cures cases, but the writer failed to see any good from it in his practice. Quinine, belladonna, and arsenic are used.

and atropin to allay the profuse sweating. There are cases reported that got well from iodine. This seems strange, for this agent is usually a poison to these people, inducing symptoms of hyperthyroidism in simple goiter and increasing the symptoms in already existing hyperthyroidism. It is indeed a diagnosticum, as by its use doubtful cases become more marked. The explanation in favor of iodine may possibly be found in cases of pseudohyperthyroidism, in breaking up pathological conditions causing intraglandular pressure. In Berne both Prof. Kocher and Tavel used phosphate of soda, about 15 grains, morning and night, with tincture of strophanthus while the patient was in bed awaiting the proper time for operation. Digitalis has little influence on the Kropbherz, as they say. Most of the representatives of internal medicine indulge in the principle of advising operation only after medical treatment has failed, thus giving the poison time to work, and they also fail to grasp the opportunity when all damage could have been prevented. How much better would it be to use medical treatment in the bad cases for a longer time!

Mobius and Kraus, the most prominent internests in the thyroid field, asserted at the Congress at Munich that surgery must take the first place in the therapeutics of Graves' disease. It was Mobius that taught us that certain poisons are developed under physiological conditions in the organism which were once neutralized by the normal secretion of the thyroid. Ballet and Enriquez injected serum of thyroidectomized dogs to neutralize hyperthyroidism. Bruchard and Blumenthal made a preparation of milk of thyroidectomized goats, called rodagen. Mobius caused Merck & Co. to prepare from thyroidless sheep a serum, called anti-thyroidin Mobius. The reported results vary. Some have seen the active symptoms cease after a long time, but how much the time element and the changing histology had to do with it cannot be said. Lasting results are not mentioned. Ewald, Mackenzy, and Strumpel did not see any improvement. Eulenberg and Murray speak of failures and damage done. Rogers and Beebe injected rabbits with an emulsion of the thyroid from Graves' disease and prepared a serum. Dr. C. H. Mayo is said to have used it with varying results. Thyroid extract has been used, but the general experience is, that it causes tachycardia and the strength fails rapidly. This seems perfectly in accord with the nature of the disease, since, by feeding thyroid, hyperthyroidism has been induced. Thymus and adrenal and pituitary extracts have been used. Pusey used *x*-ray treatment. In some small parenchymatous goiters he had seen permanent reductions, but in most of the cases there had not been any benefit. Beck used this treatment also, but only after partial excision. The sympatheticus operation advocated by Jaboulais, 1896, seems to have gone to its reward. During the exciting post-operative stage, Mayo uses hypodermoclysis, and for the sweating he uses atropin. Bisulphate of quinine has been injected by others. Hemorrhage and pneumonia should be watched carefully for.

In conclusion, the writer may be permitted to cite two cases as types:

Mrs. W. Previous history, unimportant. She had an enlarged thyroid and had used all kinds of treatment. She had been very nervous of late, her heart was rapid, and she was quite out of breath when coming upstairs. Some medicines she had taken made her worse. She was about 34 years old; married about ten years; no pregnancy; husband, a clean and industrious man. Patient had fairly prominent eyes with some spasm of lids; no exophthalmus; pulse, abnormally rapid; tremor of outstretched fingers; melancholic very often; tiring very easily; working capacity only 25 per cent; thyroid uniformly enlarged to three times the normal size, and rather firm; no pulsation, and trachea normal. She got great relief from resting mostly. Sometimes a tonic was used. Thyroidectin was tried. Small doses of sodium iodide were quickly dropped in the beginning, as she became much worse. She had occasional diarrheas that would not yield to ordinary treatment, until I found secretogen. It did seem to help. She is not nervous now, four, five years since. Her melancholic spells have disappeared. She has no children. Her heart beats about normally, but it is enlarged and she is not up to full capacity and apparently never will be. Her goiter is greatly shrunken, and feels like "Schwarte" (scar-tissue), as the Germans call it.

Miss. McN. is 34 years old. Family history, unimportant. For years she has been very nervous. She was always wanted in her families to help out; she could make herself do anything and was a very useful, sympathetic, and intelligent aunt. She tired easily but kept up. She could see the work and quickly be about it, but steadily she grew tired out more easily. It took more and more energy to overcome weakness, until finally there was no use. They had said she was a hysteric. I found her in despair. She had an intelligent face, full of anxiety; her eyes were not prominent, but they showed spasms. Her heart beat fast, and she had lost a great deal of weight. The left lobe of the thyroid was palpable and soft. The uterus and ovaries seemed 40 per cent undersized. She was petted and cheered, and put to bed for ten weeks with all kinds of entertainments furnished. She got anti-thyroid Mobius, nineteen or twenty bottles, and some simple tonics. After two years her heart-beat is normal in frequency. She has no tremor; there is still underweight; she tires easily and probably will never be able to fight for herself. Her thyroid is different from what it was. It is harder and seems to contain nodules. She seems to be as well as she ever can be. We certainly cannot speak of a cure.

MEDICAL DEFENSE*

By R. H. Bosard, Esq.

MINOT, N. D.

In the discussion of this subject I shall deal with two features:

The first, while it may not be of interest to the medical profession, is, I assure you, one of the features which is most important to the legal profession in the conduct of this class of litigation. The portion I shall first discuss we will call the "record." In the trial of a case before the court the attorney must at all times look to his record. He must have therein all that is essential to a good legal defense, and have it in such shape that, in the event of a favorable decision or verdict, the same cannot be disturbed on a review by motion for a new trial or appeal.

The "record" which I shall discuss, however, is not the record made by the attorney in the trial of the case, but the record that is made, or should be made, by the physician or surgeon in the conduct of his case with the patient, who may thereafter become the plaintiff.

Medical testimony is, in a great many instances, unsatisfactory, particularly when it is so-called "expert" testimony, and I believe that it is unsatisfactory just in so far as the record of the physician, who has then become known to us as the defendant, is unsatisfactory. For that reason too much stress cannot be laid upon the physician's record.

In every instance a full and complete record of the case should be kept wherever a physician is in attendance upon a patient, each step taken in the diagnosis, treatment, and results should be noted down in a memorandum-book, as the case progresses; each visit with the date of it; the date of the development of new symptoms or complications; the date of blood-tests, urine-tests, and the results of such tests, carefully put down, so as to leave no room for doubt or conjecture on the part of the physician when, a long time thereafter, he is called upon to undergo an examination of the treatment, symptoms, complications, and general results of treatments of such patient.

This work is, of course, lessened a great deal where a trained nurse is in attendance, as her record or chart will disclose many things which the physician will not have to note, but that is only valuable or of assistance when the nurse's chart is kept, either by her or the physician in attendance, for future use if called for.

I assume that physicians will say that in a great many cases of trivial matters this would be too much work and of no necessity. In answer to that I will simply say that where a record is needed it is needed as much in one case as in another.

Aside from the physician's record being invaluable to him in the event of a suit to recall to his mind the record of events as they transpired from the commencement of the case and giving him the assurance of dates and conditions so that he can testify without any guesses or conjectures, it is even more valuable to the attorney when it comes to the use of expert testimony in court. The physician's testimony, being based upon a written record of the events as they occurred, with dates of all developments in the case, would then be positive. He would not say: "Oh, from a week to two weeks," but, positively, "eight days;" and when the hypothetical question is framed and asked of the expert called that question would be based, not upon a surmise or conjecture of time, which may be an issue for the jury, but upon a positive statement of the facts upon which there could be no dispute. The expert would not then be called upon to conjecture whether certain complications arose a week or two weeks after an operation; he would give the exact time, the record would be clear, and he could therefore give his opinion as to the cause of such complication arising eight days after an operation. He could say whether, in his opinion, it was the natural result, considering the patient's condition at the time of operation and the length of time elapsing after the same before the appearance of the new conditions.

This eliminates so many questions of doubt from the case that it is of great value in aiding the experts to give their opinions as to whether results complained of were the natural consequence, considering the patient's condition, or whether they were caused or brought about or contributed to by reason of some treatment or lack of treatment or lack of care on the part of the attending physician.

Where a physician is called to testify as to his opinion as to the cause of certain complications arising there is, in most cases, a great deal of

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

conjecture. It is probable that no one can state specifically that such complications would, or would not, naturally follow from certain diseases or operations, or whether they were occasioned by negligence of the physician. In some of these cases the most that could be said would be that, in the opinion of the witness, the result was the natural consequence or would be expected to follow. In view of such uncertainty, how much advantage there is, then, in having the dates and symptoms as they developed held down to absolute certainty so as to reduce speculation as far as possible!

The second phase I shall discuss is, how best to suppress or defend a malpractice case where the same is commenced and prosecuted at the instigation of some physician, either through ill feeling, desire to increase his own practice and decrease that of his competitor, or through his own ignorance of medical science and possible injury resulting from his own subsequent treatment of the same case.

In dealing with this subject I am going on the theory that the physician sued has not been guilty of any negligence which was the proximate cause, or which to any extent contributed to the injury complained of.

The best way to fight a fire on the prairie is to find some small break and start a back-fire. And the same rule applies to this class of cases. Start a back-fire after you discover what, or who, is feeding the flames of the fire that is threatening you, and in many cases the cause of the suit against you will vanish.

It has been stated by good authority that there can be no malpractice case without "the other physician." Therefore, proceed to find your physician, and, having found him, suppress him —smoke him out!

There are a multitude of ways in which this can be accomplished. First, you may find that he is conspiring with the plaintiff to "shake you down" for the money, and evidence of that, if you can discover it, will act as a very effective brake upon any further activities on his part, and the case will fall for lack of prosecution.

Then again you may be able to show that he, by his own erroneous treatment of the case, subsequent to your work, had caused the injury. Then again you may find—and you probably will if you run the probe deep enough—another case, entirely foreign to the one in which you are made defendant, where your envious competitor has laid himself liable to damages, either actually, or where the circumstances might make it appear so.

Then again your competitor who is backing the case against you may have been on too intimate terms with the patient, if a woman, or the wife of the patient. Probe, and probe deep, and when you get all these results let your esteemed contemporary learn what you know. That will usually be sufficient, and the fuel feeding the flames will be withdrawn, and the fire started against you will burn itself our before its heat comes near enough to scorch. If this industrious physician who is striving to compass your financial ruin is still active, then back-fire. That is, the party who thinks he or she has been injured as the result of treatment negligently performed by your opponent will commence a malpractice suit against him; or the husband of the woman with whom your opponent has been on too intimate terms will commence an action against him. One or more actions against him for heavy damage will change his views very suddenly as to this class of cases. To him they will become hideous. The bare thought of having his hard-earned dollars snatched from his grasp by what he will term legal chicanery will lead him to see things through a different glass, and he will usually see the light and realize that, if a physician gets behind the case against him who will testify to enough to take the case to a jury, he cannot escape a verdict against himself. He will more than likely see that he was probably mistaken in his assertions of negligence on your part, and the case against you will die a natural death. At any rate, he will be busy looking after his own fences without trying to break down yours, and it may be necessary to keep him pretty busy.

I want it understood that the foregoing defense is not advocated in all cases, and I am not suggesting that the physician sued in a malpractice case should attempt to handle it at all. Being so vitally interested he would probably bungle it. Further, these suggestions only apply to cases where the suit is not the result of injuries caused by negligence or lack of knowledge on the part of the physician sued, but is merely a case of "the other physician," without whose kind assistance and suggestions no suit would be brought.

DISCUSSION

The President: We have with us Dr. C. E. Ruth, of DesMoines, Iowa, and Dr. A. M. Ridgeway, of Minnesota, who have come to visit us, and I want at this time to extend the privilege of the floor in all dis-

cussions to these gentlemen. The discussion of this paper will be opened by Dr. C. E. Spicer, of Litchville. But before opening the discussion I am going to call your attention to a little article handed to me by the Superintendent of Schools of this city, a gavel made by the boys in the Manual Training Department here, and a gavel that was used by our Superintendent of Schools as president of the State Educational Association while presiding at that association.

Dr. C. E. Spicer (Litchville): I wanted very much to look over this paper before attempting a discussion of it, but as it is I have but little to say. We are very grateful to get all the legal light obtainable on this subject, and I am sure we appreciate the efforts of our legal friend in presenting this subject in the manner he has. We should all follow the suggestions of this paper, as I believe by so doing many legal pitfalls could thereby be prevented.

I notice that he has classified his subject under two headings: one concerning the records we are to keep; the other, how to prevent a malpractice suit. I think the two headings completely cover the subject. Under the first part of the subject I have no suggestions to make, yet I believe were we to follow carefully the suggestions he has offered it would be all that is necessary. The trouble is, we keep too few and too incomplete records on all our cases. The burden I suppose is too much for us.

I have never been a defendant in a malpractice suit, I am happy to say, yet I have been threatened many times, much to my chagrin and displeasure. It has served to frighten me considerably. It rather stirs up our anger. All malpractice suits are instituted largely by rival physicians, or by some patient in the community who is a worthless character. Patients also threaten malpractice suits in order to get out of paying legitimate bills. Very few of the doctors in North Dakota, who are members of this Association, make mistakes enough to have a conviction in a worthy malpractice suit. I believe this to be the truth. The suits they are called upon to be defendants in are, as I have said before, trumped up by some rival physician who has too little of other business to keep him out of disgrace; by worthless patients, who take this method in attempts to dodge their bills; or by some lawyer who is always looking for a legal scrap. All these should be met on their own ground, and the advice of our legal friend followed as closely as possible.

In case the suit is started by some patient who thinks he has a cause that will carry a jury, I believe the best way to meet it and defeat its purpose is to insist on the patient's paying the bill immediately, either with the cash or by a note. Should he refuse to do this then sue him for the bill.

In this connection I have a case which I wish to cite. I was called to see a man who had been kicked on the hand by a horse. This resulted in a fracture of the first phalanx of the third finger of the right hand. This fracture was compound and complicated by a dislocation of the metacarpophalangeal joint. It was a very bad injury, and I feared it would turn out badly with the best of treatment. It required drainage, and after I had been treating it for about three weeks, the patient took the splint off and assumed the treatment himself. In about six weeks he came in the office and showed the finger with an angular deformity. His chief motive in coming in was to inform me that he was about to sue me for $4,000 for the loss of his finger and the crippled condition of his hand. I kept a careful record of this case. I immediately informed him the amount of his bill and insisted on its being paid at once. I told him if it was not paid in two days I should bring suit for the bill. This had the desired effect. He paid the bill and has since employed me for many other complaints. He got a bad hand, and one which would have looked bad to the average jury, but my defense, had the case come to trial, would have been based on the patient's neglect to follow my instructions.

Another case which will illustrate the point of keeping an accurate record is of a woman who some four years ago consulted me concerning a housemaid's knee, which was undergoing suppuration of the intracapsular structures. It was decided to drain the knee, and after an interval of about four weeks passive motion was to be instituted. After instituting one treatment of passive motion the patient refused a second because of the pain resulting. As an anesthetic was contra-indictated in this case, I had the patient sign a contract to the effect that if ankylosis resulted by not carrying out the passive movement there would be no cause for a malpractice suit. She got an ankylosed knee, just as I anticipated, but she had to be satisfied because she refused to allow the treatment which in my judgment would be the most conducive to a useful joint.

Another point I think not mentioned by our legal friend is how to prevent a criminal malpractice suit. A great many suits have been brought against physicians for alleged criminal malpractice which have resulted in railroading the physician into the penitentiary because the physician can not prove his innocence. I have in mind a case in my own practice which illustrates this point quite forcibly, and had I not been able to show by careful notes and expert testimony to the contrary I might now be doing time. I was called some eight miles in the country to see a young woman sixteen years of age, who lived in a distant city and who came to North Dakota to spend the summer with a sister for the purpose of visiting the relative and attending to some secret private matters which concerned herself and a young man of her home town. I was called to see the young woman because her sister thought she had too profuse a menstrual flow. Of course, I am always suspicious about a history of this kind (laughter). I don't know why I should be, but I think we should be suspicious. I remember some good advice I received while in college: "Always believe a woman pregnant until she proves herself otherwise." This had become a sort of adage to me when called upon to treat unmarried females with histories like this case. I could get nothing out of this girl, as she absolutely refused to talk. This made me a little more suspicious. Her sister knew nothing of the condition, but informed me that she had always known that the girl had been regular in her menstrual habit while at home, yet had missed one period since she came here. And this time it was so profuse as to be alarming. This is all the history I could obtain, as the girl was absolutely silent on all points. I then insisted on a vaginal examination, which was refused. I then informed the girl and the family that unless this was submitted to I should pack my grip and return home. This resulted in the examination being made, which proved a pregnancy of about three

months. I then informed the girl that she would have to talk, or I would still not assume any responsibility in the case. I then got the usual history. She had become pregnant at her home, received some medicine from the doctor from her home town for the purpose of "bringing her around," and it was up to me to finish up a bad job. It was a case demanding a curettement. I incorporated into a statement the facts of the case, with an agreement in which a curettement was to be done, a trained nurse employed, and an assistant for the anesthetic. I also got the legal consent and the promise of the whole bill. The case turned out all right, but in the event of the death of the girl, I should have been called upon to prove that I had not been instrumental in her death through a criminal operation. I believe by my expert help and the notes with the contract that it would have been an easy matter to have proven that I was an innocent party to this criminal abortion.

I believe a doctor should be always on the alert to produce means to justify himself in the treatment of every case, remembering always that a malpractice suit may in 100 per cent of the cases be prevented by careful work in the beginning.

The President: I am glad to say we have with us in addition to the gentleman I have already mentioned, Dr. John M. Dodson, of Rush Medical College, and I went to extend to him at this time the privilege of the floor for all the discussions.

Dr. V. H. Stickney (Dickinson): The attorney and Dr. Spicer have brought out two important factors in malpractice suits, but there is one, however, upon which they have not touched, that is, the unscrupulous attorney who approaches persons whom he thinks have met with poor treatment from a physician with a view to advancing his own pecuniary interests. In the practice of surgery for one of the transcontinental lines of railroads for twenty-five years, I have been brought into contact very frequently on the witness-stand, and otherwise, with many of these so-called ambulance-chasers, and I have come to the realization that they are a very strong factor in producing these malpractice suits.

Dr. W. H. Cuthbert (Crary): There is just one idea that came to my mind. I don't know what the doctor's idea was in referring to the physician that prescribed ergot in the first place. I don't know whether the physicians here would consider that man guilty in so prescribing. There are many cases where a man would prescribe ergot perhaps without the knowledge of pregnancy, and in a case of that kind would you think it necessary to keep a record of the symptoms and the object in giving it?

Dr. W. H. Bodenstab (Bismarck): I would like to ask the essayist if a person can bring a damage suit for malpractice before he has paid his bill, provided he is not primarily a charity case.

Mr. Bosard: Yes, he can. There is nothing that requires him to pay his bill. The very theory of the malpractice case is that you render no valuable service. Instead of his owing you anything, you have injured him, instead of helping him, and you owe him by reason of that injury. The malpractice defense is very often put in in an action by a doctor for his services by the particular class of people that were mentioned by Dr. Spicer. Usually they are worthless reprobates who have been treated by the doctor for a long time without paying, and possibly have earned a little money in some way, and the doctor thinks it is time he got some of it, and attempts to force payment. It is for the purpose of offsetting the bill that he trumps up a malpractice charge and puts it in his answer as a defense to the suit for services by the doctor and also as a counterclaim for large damages against the doctor.

Dr. Joseph Rogers (Donnybrook): A little more legal advice. In case the man was forced to pay his bill, would that be evidence in favor of the doctor in a malpractice suit?

Mr. Bosard: There is not unanimity of decision on that proposition, some decisions holding that a successful action for services is a bar to a claim for malpractice growing out of treatment. In other words, malpractice was a defense he might have put in, and not having put it in it would be a bar to a future claim for malpractice arising out of the same services.

Dr. J. M. Dodson (Chicago): The copy of a prescription is in some cases great protection. I have used for many years a carbon which makes the keeping of a copy much easier and simpler, and it holds in court. A stub-copy is not evidence in court, and will not be accepted as such, because there is every opportunity for mistake in writing the stub. The carbon copy has been decided by the courts to be legal evidence as to the character of the original prescription. A case happened in Chicago where a mistake was made and death resulted. The prescription was altered afterward, but the carbon copy served to protect the physician in the malpractice suit that followed.

Dr. Spicer: In answer to Dr. Cuthbert's question I will say that it is my advice never to prescribe ergot, or anything of that kind, to an unmarried woman until you know her condition.

There is another point I intended to speak about, and that is in regard to expert testimony. I think it ought to be the concensus of opinion of this Association not to go on record in the matter, but each for himself to think that no physician should render expert testimony against a brother physician. I believe that was talked about in Grand Forks; that is, do not render expert testimony against a member of this Association unless you are subpœnaed and then go as a reluctant witness, and any attorney will tell you that a reluctant witness is worse than no witness. Go reluctantly if you have to, but do not render expert testimony against a member of this Association, or of any other association. I think we can make a living if we do not do it.

Mr. Bosard (Essayist): I think that the Association would make a very great mistake to go on record on any proposition of that kind, because some day some member of the Association will be on the witness stand and he will be unmercifully quizzed by some attorney who will get under his hide. I do not believe the doctor expressed himself exactly right. I think he meant not to go out and volunteer to John Jones that his case has been poorly handled, and he is entitled to damages against the physician that looked after him, and give him any hopes of stirring up a malpractice case; but of course when a doctor is subpœnaed and is on the witness stand, he has to testify

from the facts that appear there. I think it would be a very grave mistake for the Association to go on record in an attempt to suppress witnesses in the matter.

I think it is a very good idea for the members of the Association to understand that it is not good ethics to go out and butt into the other fellow's case and tell his patient that he has been very poorly treated and he undoubtedly suffered untold injury of all kinds of mental and physical suffering, and probably a jury would give him a big verdict, but at the same time he would not advise him to sue because that is the very thing that will start a malpractice suit

DANGER FROM BONE FILINGS*

By R. E. Farr, M. D.

MINNEAPOLIS

I wish to report the following case operated upon this morning, especially to call attention to a point which this case illustrates very well.

On January 23d this man's humerus was plated after two unsuccessful attempts at reduction, with the patient under ether, had been made. During this operation no special precautions were taken to prevent the "bone dust" from being scattered over the exposed muscles while the bone ends were being sawed off in preparation for the plating. There is very little written upon this particular point, and, in watching men in different parts of the country do the plating operation, I have never heard one of them mention the necessity of carefully protecting the exposed muscles from these "filings." I believe this to be a very important point in the technic of the open treatment of fractures, which is, as I say, well illustrated by the following case.

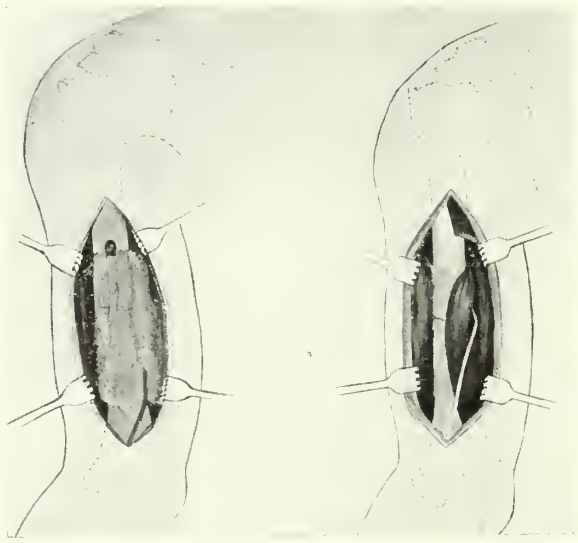

Fig. 1. Callus ten weeks after bone-plating of humerus for irreducible fracture. Musculospiral nerve completely encased in new formed bone for about four and one-half inches.

Fig. 2. After removal of bone plate and callus a flap of triceps muscle was sutured between the freed nerve and the roughened bone.

When the second operation was performed for the purpose of liberating the musculospiral nerve from the callus, the condition illustrated in Fig. 1 obtained.

The Lane plate which was placed upon the bone was found completely buried in callus to the depth of 1 cm. The brachialis anticus and triceps, contiguous to the bone, were infiltrated with new bony tissue over an area measuring approximately five inches in length. (Fig. 1.) This condition was evidently due to the scattering of osteogenetic elements over the exposed muscles at the time of operation, as only the portions of the muscles exposed at operation were involved. Myositis ossificans can, I think, be excluded. The overgrowth of bone and the bone plate were removed, and a strip of the triceps was wound about the humerus, as illustrated in Fig. 2. A small amount of motion still remained. Great care was used in liberating the musculospiral

Fig. 3. Shows the amount of callus still remaining after a very thorough removal at operation. Radiograph taken three and one-half weeks after operation.

*Case presented before the Hennepin County Medical Society, April 7, 1913

nerve, which was first identified at the lower angle of the wound.

The astonishing amount of the so-called "callus" here was apparently due largely to the above-mentioned cause, although in a case like this, where great trauma had been produced by the injury, the resulting blood-clot undoubtedly contained many osteoblasts, which, through this medium, might be disseminated along the contiguous muscles. In my judgment, no such amount as this would be formed from that cause alone.

This case is so illustrative that I thought it well worth while to present it at this time. I have noticed this in other operations in which no precaution had been taken to protect the muscles from bone dust.*

* The musculospiral paralysis is gradually clearing up, and he can now, May 24, 1913, extend the wrist through an arc of twenty degrees.

THE SOUNDING-BOARD AS AN AID IN DIAGNOSIS OF DISEASES OF THE CHEST

By J. E. Engstad, M. D.
Minneapolis

In examining the lungs for incipient foci, either of tuberculosis or other infections or acute diseases, physicians have felt the need of a mechanical adjunct whereby the sound of percussion could be more distinctly heard.

The stethoscope is of great diagnostic value, and I trust that sounding-boards will, in due time, be as universally used as the little pocket instrument invented by a Frenchman nearly a hundred years ago.

The sounding-board that I have had constructed is three feet wide by five feet high, made from two piano sounding-boards, the boards being set four inches apart in a hardwood frame properly fastened with glue and avoiding nails or other metallic reinforcements.

The boards are braced in their center by a bridge of hardwood, and the front board has two holes two inches in diameter bored through it, which tends to equalize the pressure of the air between the boards and frame while in a state of vibration and the circumambient air, which is the cardinal principle for the proper reflection and reinforcement of the air-waves, or energy in the form of vibrations.

This apparatus will markedly intensify all sounds from the chest-walls, and it has been of great service in suspected small cavities, deposits, and small infarcts in the chest which are revealed by the reinforced vibrations as reflected from the sounding-board, which prevents the sound waves from disappearing in space, but are reflected redoubled in the angle of the impact.

A great deal of experience will be necessary to devise the right size of instrument. Its pitch and form will have to be considered, but this will be solved by expert mechanics working by formulæ deduced from mathematical equations and from actual experience.

REINFORCEMENTS OF SOUND

Vibrations are conducted from the original impact or force applied to the belly and then to the back of the instrument of the enclosed variety. The confined air is set into vibrating motion and this motion is finally communicated to the circumambient air. We then have mechanical movement transferred into sound.

Not all force will produce sound, for if we have two vibrating impulses of the same velocity and intensity but of different phase, no sound will be heard. However, in one sonorous body impressing its vibrating motion to another sound-body we have reinforced sounds, provided there is no wave-interference.

All notes are not reinforced to the same degree, for the main notes will be reinforced to a greater extent than the minor notes.

Hocke's law is, that a sound is in proportion to the stress, measured by elasticity, its volume, physical properties and regularity, all governed by resisted oscillations, all motions subject to the law of energy applied to the forced vibrations. Forced vibrations consist of two parts, oscillating and rarified, the latter condensed alternately. These three distinct principles must be borne in mind in all cases: first, intensity; second, velocity; third, elasticity. Intensity is proportionate to the square of the amplitude, also to the square of the elasticity. Air set in motion augments as the square of the distance. Loudness diminishes in the same proportion and varies

inversely to the square of the distance. The intensity of a sound is proportionate to the square of its maximum velocity. Intensity of sound is proportionate to the square of its amplitude. The velocity of sound in the air at about 80° is about 1,090 feet per second. In certain woods, for example, beech, it is 12,000 feet per second. The human ear is capable of hearing vibrations of

certain amplitudes above sixteen and below thirty-eight thousand per second.

PHYSICAL CHARACTERISTICS OF WAVE MOTIONS

1. An elastic medium is required for the propagation of a wave-motion.

2. Speed of propagation is finite and differs for different media.

3. The reflection usually occurs when waves reach an abrupt termination of the medium.

4. Refraction, accompanied by partial reflection, occurs at the junction of two definite elastic media.

The term *resounding* refers, of course, to the production of a second sound by the stimulus of the first. Maintenance, on the other hand, refers to the continuance of a vibration with undiminished vigor, owing to the application of some extraperiodic force.

Amplitudes of all the vibrations are continually diminishing on account of the internal friction.

RESONATORS

Resonators are a class of instruments containing a definite quantity of air; opening to the external air is small in comparison with the closed cavity. These are used to respond to peculiar tones as fully and precisely as possible.

Sounding-boards are therefore mechanical media enhancing the vibrations of the air movement, exposing a large vibrating surface to the air whereby the vibrations become audible to the ear.

As an aid to physical diagnosis we must take into consideration the sonorous quality of the human lung, the thickness of the chest-walls, the force necessary to transfer and transmit air-impulses to the accessory vibrating surface or instrument, the total stress, wave-interference and wavelets, wave-absorption, pitch, and amplitude.

Instead of the elastic chest-wall reflecting all percussion-sounds heard by the ear, the sounds which were transmitted through the body to the sounding-board will be reinforced instead of lost, and by being reflected will be heard with a greater degree of loudness and distinctness than if the waves were not so reflected.

To make this instrument an exact aid in diagnosis, we must learn to distinguish the different sounds as they are modified by the increased vibrating surface, and also by the tendency to intensify certain notes more than others.

A thorough knowledge of the musical terms of pitch and loudness ought to be mastered. Amplitude must be considered as well as the phase and quality of the direct and reflected sounds or notes. As sound-waves are a purely physical quality independent of the ear, musical training, practice, and general intelligence will be indispensable to correctly interpret the sound shadings as reinforced by the instrument.

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THE AMUSING DRUG SELECTIONS

The next decennial revision of the United States Pharmacopeia will be a surprise, as well as an entertainment, to some of its readers, particuraly if, with the reading, the reader reads the report of the Committees of the A. M. A. Council on Pharmacy.

It is presumed, in order to open a discussion, that some books are read by a few and neglected by a majority. The editor fears that the U. S. Pharmacopeia is read by the few and left unread by the many.

The man who does not read of the new drugs and who reads that many of his cherished idols have been swept into the pharmacopeial waste-basket, will suffer pain and indignation, until he begins to think, then he will think again, and the more he thinks of drugs,—their usefulness or their uselessness,—the more bewildered will he become. Perhaps he has been in the habit of using old-time remedies that have been handed down from father to son, but when he learns that they are simply needless or useless he will speculate as to his good results. If he can combine drugs that will not scream at one another or create an intestinal cataclysm, he is indeed fortunate, and the probabilities are that his patient will suffer no harm, even if the drugs are no good. The man who respects an intelligent prescription-writer is the pharmacist, provided he is a real one. To be able to use drugs simply, to combine them into a chemical, compatible whole, is the aim of every medical man. How many men can do this and escape the criticism of the druggist?

Many more medical men of today than of those who lived twenty years ago are unable to formulate a recipe that will stand the test of scrutiny. Prescription-writing has lost itself in the midst of prepared pills and tablets, and much prescription-writing has been made easy by commercial supply-houses, all of which saves thinking on the part of the medical doctor. In the olden days the doctor wrote "Basham's Mixture" for liquor ferri et ammonii acetatis, and he thought his patient was bettered thereby. Today he is told that it is one of the mixtures that contain fool ingredients or have multiple ingredients, and therefore is beneath the dignity of the Pharmacopeia. The same thoughtless doctor will prescribe sodium diethylbarbiturate (veronal-sodium), because he knows what it contains and what its chemical constituents are and just how they perform in the human anatomy!

Some drugs are fool things, some drugs are used in fool ways and for fool purposes, and some drugs are used by fools. An effort is being made to standardize drugs, but what are standard today are out of standard tomorrow. New combinations are coming out daily, and the old reliable drugs are scoffed at by the practitioner of modern times.

As the centuries roll by, the same system will prevail in commending and condemning remedies. Pharmacopeias will come and go, and committees will change in their opinions because there will always be a demand for a change. There are a few things, however, that will be in constant demand. Doctors must first be educated in making diagnoses; they must determine a sane course of treatment to be pursued; and they should simplify the drug-giving until they know what drugs are for and how they act.

Unless this goal can be reached there will be a confusion of ideas in regard to the use and abuse of drugs, to say nothing about the abuse of the patient.

Too little thinking and too much drugging drive patients from real doctors to unreal ones, and thereby hangs the "tail" upon which cling the faddist, charlatan, and irregular.

THE FRIEDMANN BUBBLE

It is time for the profession, as well as the people, to know that the famous and much-advertised Friedmann cure for consumption has at last collapsed. It never had a very substantial hold in this country, and now that the New York City Health Department has published its findings the last thread has snapped. The attitude of the government and the city of New York toward Friedmann when he began to exploit his remedy is one that should be copied all over the world. A few wholesome examples of this kind would discourage the promoters of unscientific and dangerous medical agents. It would also prevent the headlong enthusiasm that is apt to usher in a new cure of a preventable or an incurable disease.

Dr. George G. Rambaud has completed his analysis of the serum and finds that "the vaccine consists of a homogeneous emulsion of live avirulent tuberculosis bacilli in sterile distilled water. The germ was isolated several years ago from a diseased turtle and maintained ever since in culture media according to the usual procedure. The vaccine is administered to patients in doses of from cubic centimeters 0.10 to cubic centimeters 0.30 at intervals of from four to six weeks. Injections are made intravenously in the case of joint tuberculosis and intramuscularly in pulmonary tuberculosis."

During Friedmann's sojourn in this country his sole purpose was to get all the money he could out of the people. His prices ranged from $4,000 to $1, according to the financial standing of the tuberculous victim. If he was poor and only had one dollar that he could spare, Friedmann cheerfully took the dollar. If the sufferer was rich, the fee or gratuity was correspondingly higher. He alienated the sympathy and good will of all thinking physicians and he left a trail of abandoned hope all over the country.

The air of secrecy and mystery that heralded Friedmann before and after he arrived has been dispelled, and the public generally will class him among the charlatans. This is not the greatest evil he has brought to us, however. It has been hard enough to enlist the co-operation of the people in the prevention of the disease, and Friedmann's methods and failures will cause more antagonism to the antituberculosis movement than has been encountered before. All such sera or those on a par with Friedmann's and those that are wholly commercial and have no good in them, simply delay the education of the public in the safe and simple means of preventing a disease which has a death-rate of 180,000 people a year!

Some of the cases that were treated at sanatoria where fresh air, sunshine, and good foods were helping the patient to gain or hold his own, died soon after a Friedmann injection.

It has been estimated that Friedmann received about $40,000 from private patients and an equally large or greater sum from a firm that bought his secret. It was the aim of the firm to establish institutes in every state in this country as soon as possible, regardless of the ultimatum from the Government. The idea was to get these treating-places started on a corporation basis, the owners of the mysterious serum to hold the major portion of the stock in each state. Of this stock Friedmann was to have a percentage that would be equivalent to about one million dollars for his secret. The institute in New York City was ready and equipped for business, interviews were given out and advertising begun when the New York Health Department issued an order forbidding the use of the serum. Since then all apparent activities have ceased, and from now on the public will be warned against the new cure.

Who is to blame for all this sort of thing? *Pearson's Magazine* says that the fault lies with the medical profession, and that their ignorance in failing to diagnose the early cases is responsible for three-fifths of the deaths from tuberculosis. Only too often the doctor calls incipient tuberculosis a "hard cold," a "winter cough," a "spring cough," a "summer cough," or "bronchial catarrh," "bronchitis," or "pleurisy." The average physician continues to treat the symptoms of early tuberculosis instead of the disease itself. If this failure continues in the profession, no wonder that the difficulties of stamping out the disease are almost insurmountable, and no wonder the public remain apathetic as to cause and effect.

The sociologists and the medical men must get together on the problem. The establishment of county sanatoria all over the country is yet in the experimental stage; and the cost of maintenance and the expense of professionally skilled men to supervise the care and treatment of cases have not been properly considered. Large buildings of expensive materials are unsuitable until all of the details have been worked out. This applies equally as well to sanatoria

that are erected for twenty to forty beds. State aid and local aid are well in their way, but what about the after-care?

The new sanatoria will be overloaded with advanced cases rather than with the incipient ones. Would it not be wiser to build cheap buildings that can either be burned or torn down, rather than to put much money into ornate and indestructible buildings until after we find out how much it costs and how to maintain a home for the tuberculous?

In the meantime let us give thanks that a bubble has been punctured.

PREVENTIVE MEDICINE

The work today of the medical profession in preventive medicine constitutes the greatest effort ever made for the betterment of humanity. This work is both by individual effort and in organized forms of manifold kinds. The prominence given the subject in county, state, and national association meetings is attracting the attention of the general public to such meetings, and is gaining for the members of the profession an appreciation that is highly gratifying.

But preventive medicine will not reach its highest, or even a satisfactory, degree of efficiency until a foundation for the work is laid in the scientific training of medical men, and this can be done only in our medical schools in organized courses in hygiene and sanitary science. This fact has long been recognized by the American Academy of Medicine, and we are glad to be able to publish the exhaustive and able report of the Association's committee on "The Teaching of Hygiene in Preventive Medicine in Medical Schools," prepared by Dean Heffron of the College of Medicine of Syracuse University.

THOSE NAUGHTY DOCTORS!

We have sung, to some extent, in these colums the praises given almost unanimously to the entertainment furnished by the St. Paul physicians to the members of the American Medical Association who were their guests for one evening during the recent meeting of the Association in Minneapolis.

As numerous members of the JOURNAL-LANCET staff were among the guests, we have naturally supposed that, with their somewhat varied and "experienced" (possibly acquired) tastes, if there had been any "very questionable vaudeville," some members of the staff would have seen it. Now, not one of the staff will admit that he saw anything remotely approaching any of the "disgraceful features," which the Ramsey County W. C. T. U has "resolved" characterized the proceedings of that delightful entertainment.

We have the highest respect for the good women who compose the W. C. T. U. organizations of the country, and we are heartily in sympathy with most of their work; but we think, and think strongly, that they have done the the medical profession of Minnesota a great harm in the "strong and intemperate" language they have used to characterize a vaudeville entertainment which was attended by a large number of ladies who enjoyed the performance and saw nothing whatever in it to criticise.

THE AFTERMATH OF THE A. M. A. MEETING

The meeting of the A. M. A. in Minneapolis this summer was looked forward to with a legree of anxiety, on the part of those who had the committee work in charge and to do, that few can appreciate. It is now looked backward to with a degree of satisfaction that comes only after big tasks have been performed, and the seal of "well done" has been set upon the performance by intelligent, experienced, and sincere men.

A number of such expressions have come to Dr. Frank C. Todd, chairman of the Executive Committee, and we are glad to be able to give two or three of them to our readers:

FROM DR. JACOBI, EX-PRESIDENT

Since you received me at the railroad station I have been gladdened by the constant attention of yourself and all of your committees paid to me and to all your duties and responsibilities, which have been many and various. I wish to express my thanks and sincere appreciation for what you and all of you have done for the memorable meeting of Minneapolis, which will always be remembered as one of the most successful. Words are poor rewards, I know, for your work of love, but they are sincere and meant to be grateful. Please repeat to your co-operators the warm greetings and the expression of gratitude from your ex-president,

FROM DR. GEORGE H. SIMMONS

I want to express in writing our appreciation of the hearty co-operation you and your committee rendered us in the great meeting which has just closed in Minneapolis. This is the fifteenth annual session of the American Medical Association with which I have been directly connected, and I feel that I can sincerely say that in none was there evidence of more satisfactory and pleasing preliminary work and final management of the meeting. There was not even the semblance of friction

anywhere, and certainly the meeting itself was perfection.

One word more: From what I saw and heard, those who had charge of the entertainment of the ladies deserve all kinds of praise. Everyone seems to have had a good time and even those who are in the habit of criticizing, with all their endeavor to find some fault, had to give up.

FROM CHEVALIER JOHNSON, OF PITTSBURG

Permit me to thank you kindly for many courtesies, and to congratulate you on the remarkable success of your meeting. It is the most successful meeting of the American Medical Association which I have ever attended, and this is all the more remarkable as Minneapolis is not as large as some of the other cities where the Association has met. There are very few cities in the country that can handle a crowd of the size usually attending a meeting of the A. M. A.

FROM THE ST. LOUIS (MO.) COUNTY MEDICAL SOCIETY

St. Louis was splendidly represented at the American Medical Association meeting in Minneapolis and appreciates very much the courtesy shown us, and desires to congratulate your profession on the most excellent commitee work for our entertainment.

We feel that as the ladies of our party were so splendidly entertained and cared for at the hands of your ladies' committee that we also thank them on behalf of our ladies.

The St. Louis Medical Society is cognizant of what good American Medical Association committee work means and is proud in the way our sister twin cities on the upper Mississippi met their responsibilities.

By order of the St. Louis Medical Society.

F. C. H. KUHLMANN, Secretary. LOUIS H. BEHRENS, President.

The splendid success of the local work of caring for this large body of professional men, was due to the hearty co-operation of the members of the medical profession of both Minneapolis and St. Paul, the latter acting as hosts for one evening in a manner that won our hearts.

In addition to liberal contributions, a number of Minneapolis physicians subscribed a guarantee fund of $5,000. This entire amount was returned to these men, and $5,000 more was returned to citizens and other physicians who were not asked to give to the guarantee fund.

It is all heartening!

NEWS ITEMS

Work has been begun on the new hospital at Harvey, N. D.

Dr. O. M. Smith, of Manning, N. D., was married last month.

Dr. N. C. Thimsen has moved from Hayfield to Blooming Prairie.

Dr. T. L. Stangebye, of Regent, N. D., is doing post-graduate work in Chicago.

Dr. G. S. Frogner has begun practice at Berthold, N. D., having passed the state examination last month.

Dr. O. W. Fisher, of Watkins, has been arrested for practicing without a license and will be tried next month.

Dr. W. J. Mayo will read a paper before the Congress of Physicians and Surgeons, which meets next week in London.

Dr. J. C. Michael, a 1913 graduate of the State University, has become associated with Dr. J. L. Adams, of Morgan.

Dr. F. D. Smith, of Reeder, N. D., has formed a partnership with Dr. A. G. Andersen, of Hillsboro, and has moved to the latter place.

Dr. C. C. Birkelo, of Huxley, Iowa, is acting as assistant to Dr. C. R. Christenson, of Starbuck. Dr. Birkelo is a recent Rush graduate.

The first cured patient to leave the new North Dakota tuberculosis sanitarium at Dunseith, is a young woman 19 years of age, who entered the institution in December.

Dr. Robert Colwill has returned to Belfield, N. D., after an absence of a year and a half spent in post-graduate work. He returned with increased knowledge and a bride.

Dr. W. H. Hengstler has moved from Rockford to Osakis, taking the practice at the latter place of Dr. J. H. Titus, who will do post-graduate work in the East and then move to California.

The attorney-general of South Dakota has given his opinion that it is not within the power of a physician in that state to declare a quarantine. This can be done only by the state or a county board of health.

A new $75,000 building for St. John's German Lutheran Hospital of St. Paul seems assured, the trustees of the hospital having ratified the recent action of the St. Paul Lutheran Association calling for such improvement.

Dr. Arthur Hirschfelder, of Johns Hopkins, has accepted the professorship of pharmacology in the Medical Department of the State University. Dr. Hirschfelder has done a good deal of original work, and is the author of several books.

A new civil service law recently adopted by the city of Minneapolis will govern the appointment of the head of the City Hospital and about

200 employees. This means that the present efficient head of the hospital, Dr. H. O. Collins, will remain, probably, for many years.

The news item in our last issue stating that Dr. Rowland Gilmore had moved from Madison to Bemidji was wholly wrong. The fact is that Dr. C. B. Powell has moved from Madison to Bemidji. Dr. Powell has become an associate of Dr. Gilmore, who has practiced in Bemidji for eleven years.

Dr. A. C. Strachauer, of Minneapolis, has been appointed by the Board of Regent's representative of the Medical Department of the University to the International Congress of Physicians and Surgeons, which meets in London on August 8th to 12th. After the meeting Dr. Strachauer will go to Berlin for a couple of months to visit clinics.

The North Dakota State Board of Health is planning to have only district, and not county, health officers. The health districts will be the same territorially as the present judicial districts of the state. The Board will ask the next legislature to adopt this plan, and to supply sufficient funds for salaries that will command services equal to the demands.

In our last issue we stated that Dr. E. B. Hoag could no longer be employed by the Minnesota State Board of Health because of a lack of funds. Fortunately, Dr. Hoag will continue his work, but it will be under the auspices of the State Department of Education. In addition to his field work, as carried on last year, he will lecture before the medical students of the University.

A large number of North Dakota physicians are very indignant that, in a report of the judicial committee of the A. M. A., made at the Minneapolis meeting, North Dakota should be singled out as a state where fee-splitting is especially prevalent. These physicians admit that such was the case in North Dakota and many other states until quite recently, but is no longer so in North Dakota.

The new State Board of Health of South Dakota, which is also the State Board of Medical Examiners, held its first meeting last month in Pierre, and organized and elected the following officers: President, Dr. L. G. Hill, Watertown; vice-president, Dr. W. E. Daniels, Madison; secretary, Dr. Park B. Jenkins, Waubay. The other members of the Board are Dr. H. R. Kenaston, Bonesteel, and Dr. F. E. Ashcroft, Deadwood.

A year ago when the City of Rochester was in a sorry plight because of the prevalence of contagious diseases, Dr. H. B. Wood was engaged for a year as health-expert for the Board of Health. His work has been a marked success, and at present there is no sickness from contagious diseases in the city, and his card-system for the schools, showing the physical condition of every pupil, is highly commended. Dr. Wood will not remain longer in Rochester, his work having been done.

The Southern Minnesota Medical Association will hold its second midsummer meeting at Owatonna, on August 3d, with morning, afternoon, and evening sessions. Papers will be read by the following men: Drs. Eusterman, Beckman, MacCarty, and Witherstine, of Rochester; Drs. Dennis and Beaudoux, of St. Paul; Drs. Geist, Benjamin, Sweitzer, and Wood, of Minneapolis; Dr. Field, of Canby; Dr. Andrews (J. W.), of Mankato; Dr. Bomberger, of Mapleton; Dr. Way, of Claremont; and Dr. Bigelow, of Owatonna.

PHYSICIANS LICENSED AT THE JUNE (1913) EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Archibald, Alexander...U. of Edinburgh, 1910
Badeaux, Geo. I.....U. of Minn., 1913
Bailey, Herbert B.....U. of Minn., 1913
Barnard, Elizabeth M.....U. of Minn., 1912
Berge, Parker L.....U. of Minn., 1913
Beach, Geo. W.....U. of Paris, 1894
Bleifuss, Walter F.....Northwestern, 1912
Bratrud, Olaf E.....U. of Minn., 1913
Bonness, Hazel.....U. of Minn., 1913
Brodie, Walter D.....U. of Minn., 1913
Corniea, Albert D.....U. of Minn., 1913
Cabot, Verne S.....U. of Minn., 1913
Davis, Thayer C.....U. of Minn., 1913
Denman, Austin V.....U. of Louisville, 1909
Dorge, Richard I.....U. of Minn., 1913
Engberg, Edward J.....U. of Minn., 1913
Evert, John A.....U. of Minn., 1913
Finley, Will F.....U. of Minn., 1913
Fisher, Carl.....Harvard, 1905
Freligh, Wilfred P.....U. of Minn., 1913
Giessler, Paul W.....U. of Minn., 1913
Hall, Joseph M.....U. of Minn., 1913
Hayes, Edward W.....U. of Minn., 1913
Kucera, W. J.....U. of Minn., 1913
Love, Frederich A.....U. of Minn., 1913

Mariette, Ernest S.....U. of Minn., 1913
Mark, Daniel B.....Barnes, 1909
Meland, Orville N.....U. of Minn., 1913
Michael, Joseph C.....U. of Minn., 1913
Moersch, Frederick P.....U. of Minn., 1913
Nuessle, Walter G.....U. of Minn., 1913
Nordland, Martin.....U. of Minn., 1913
Nesse, S. Arthur.....U. of Minn., 1913
New, Gordon B.....U. of Toronto, 1909
Noonan, Dan F.....U. of Minn., 1913
Phelps, Kenneth A.....U. of Minn., 1913
Pearsall, Phebe L.....U. of Minn., 1913
Quinnell, Earl D.....U. of Minn., 1913
Reagan, Rezin.....Rush, 1913
Robilliard, Charles M.....U. of Minn., 1913
Roddis, Louis H.....U. of Minn., 1913
Rosenwald, Reuben M.....U. of Minn., 1913
Rydell, Chas. B.....U. of Minn., 1913
Sargeant, Arthur P.....U. of Minn., 1913
Snell, Chas. F.....U. of Minn., 1913
Sommerfelt, A.....U. of Christiania, 1912
Warwick, Mary M.....U. of Minn., 1913
Wentworth, Albert J.....U. of Minn., 1913
Wippermann, Paul W.....U. of Minn., 1913
Wohlrabe, Arthur A.....U. of Minn., 1913
Woltmann, Henry W.....U. of Minn., 1913

BY RECIPROCITY

Baker, Alfred T.....
.....Col. of Med. & Surg., Chicago, 1912
Bennett, F. J. A.....Michigan, 1911
Fenger, Palmer N.....
.....U. of Copenhagen, Denmark, 1888
Gratzek, Thomas.....U. of Illinois, 1911
Morriss, Herbert A.....Marion Simms, 1898
Plummer, Wm. A.....Northwestern, 1910
Robertson, Wm. P...Detroit Col. of Med., 1912
Rumreich, Erhard A.....U. of Minn., 1911

OFFICE FOR RENT

The office formerly occupied by Dr. J. Clark Stewart in the Syndicate Building, Minneapolis, is for rent. Inquire of Dr. J. E. Moore, 616 Syndicate Building, Minneapolis.

PRACTICE FOR SALE

In a town of 600 population, 100 miles from Minneapolis on main railroad line. Practice last year over $6,000. Will sell for $500 cash. No competition; big territory. I wish to take post-graduate work in Europe. Write at once. Address W. F., care of this office.

WANTED—LOCATION FOR EYE, EAR, NOSE, AND THROAT WORK

Suitable location in small or large city. Would associate with a general practitioner. Can do operative work. Have also done successful general practice. Address C. S., care of this office.

PRACTICE FOR SALE

I offer my practice and real estate for sale. Location, Southern Minnesota, in rich farming country, thickly settled. Germans; good pay; have done $6,500 cash a year. Am going to the city. Address S. E., care of this office.

OFFICE FOR RENT WITH PRACTICE FREE

A Minneapolis physician who wishes to spend a year in Europe, will rent his furnished office and equipment at a moderate price and give such of his practice as naturally follows the office in his absence. He does general and surgical work, and has occupied his present office five years. Address M. M., care of this office.

PRACTICE FOR SALE

$3,600 to $4,000 cash practice in growing eastern South Dakota railroad center of 600 population, and complete office fixtures, costing about $400. Will sell practice and fixtures for $300 if taken at once. Good roads, large territory, good pay. Rich Scandinavian and German community. This is a snap and must be taken at once. Must have cash and good recommendations. Address F. B., care of this office.

PRACTICE FOR SALE

A fine location for a general practitioner in a growing North Dakota town of 300 population. Large territory and no competition; nearest doctor is 11 miles distant. Country is well settled and over 90 per cent are good payers. A doctor possessed of good business methods, as well as good professional ability, ought to earn $3,000 and upwards annually. To purchaser of neat cottage and barn situated on two choice residence lots, and small office building with lot on Main street for $2,000, I will hand over location and good will. My object in selling is to specialize. Address H. H., care of this office.

PHYSICIAN WANTED

The Church Mission Hospital under the direction of the Rt. Rev. Henry D. Aves, D.D., Bishop of Mexico, situated in the mountains, several hours' ride from Mexico City, and among a needy and scattered Indian population, is seeking a young physician, graduate in medicine and having had some hospital experience. An unmarried man and a member of the Episcopal Church is preferred. A salary of $1,000 United States currency per year and living-quarters are provided. Traveling expenses to Mexico would also be provided. For further information, address the Rt. Rev. Henry D. Aves, D.D., Apartado 151, Guadalajara, Jal., Mexico.

PRACTICE FOR SALE

A $3,000 to $4,000 practice, that can be increased by a capable surgeon, in a manufacturing, railroad division, and farming village of 2,000 population, 100 miles from Twin Cities, given to purchaser of my office equipment. Reason for selling: Am going to specialize in the city. Address M. S., care of this office.

PRACTICE FOR SALE

An unopposed $4,500 practice established for 15 years in a good live town in western Minnesota. Nearest opposition 10 miles in one direction and 20 in any other. Surrounding country thickly settled by prosperous farmers. Good collections, good roads, good schools, and good crops. $500 takes practice, lease of offices of three rooms, and office furniture. Address B. M., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF MAY, 1913

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

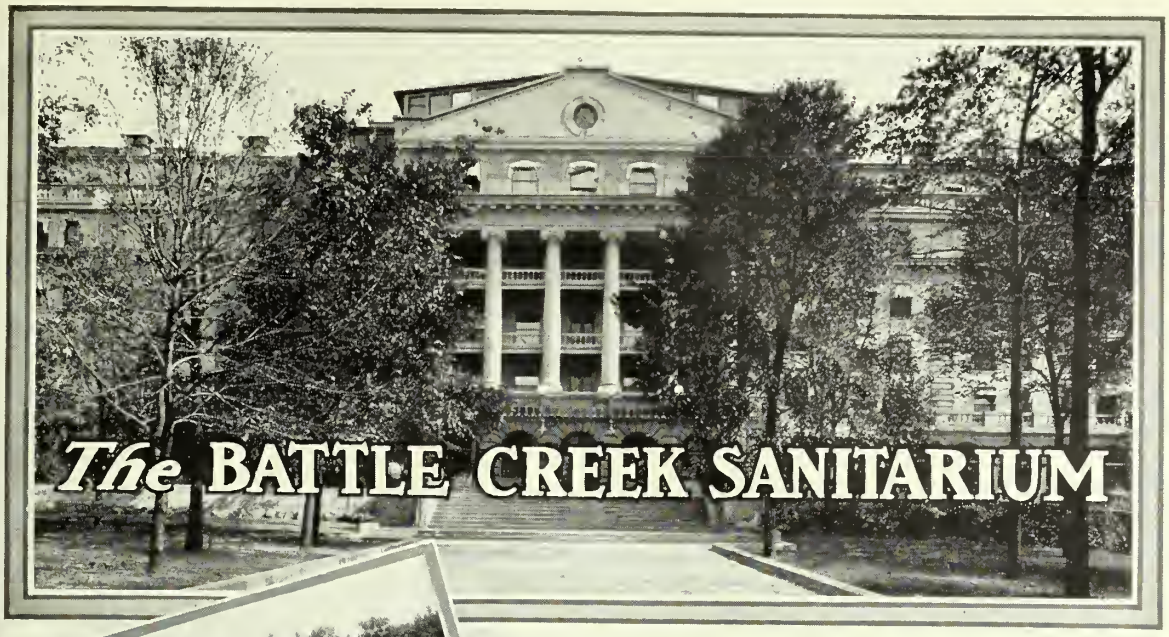
CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	6						1							1		
Alexandria	2,681	3,001	5	1														
Anoka	3,769	3,972	6	1		1												
Austin	5,474	6,960	12	1		2												1
Barnesville	1,326	1,353	2														1	
Bemidji	2,183	5,099	11			3									1			1
Benson	1,525	1,677	1													1		
Blue Earth	2,900	2,319	6															
Brainerd	7,524	8,526	10	2		2	1									3		
Breckenridge	1,282	1,840	6			1								1				1
Canby	1,100	1,528	1	1														
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	2													1		
Chatfield	1,426	1,226	1													1		
Cloquet	3,074	7,031	6	1			1								2			1
Crookston	5,359	7,559	9		1													1
Dawson	962	1,318	3			1										1		
Detroit	2,060	2,807	1															
Duluth	52,968	78,466	87	7	2	11		1	4						4	6		3
East Grand Forks	2,077	2,533	5	1					1									
Ely	3,572	3,572	6	1		1									1			
Eveleth	2,752	7,036	4												1			1
Fairmont	3,440	2,958	2	1														
Faribault	7,868	9,001	3	1	1													
Fergus Falls	6,072	6,887	5	1	1													
Glencoe	1,788	1,788	2															
Glenwood	1,116	2,161	3						1									
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	2															
Hutchinson	2,495	2,368	1															
International Falls		1,487	10		1											1		
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	3															
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	5															
Luverne	2,223	2,540	1															
Madison	1,336	1,811	2													1		
Mankato	10,559	10,365	14		1	2										4		2
Marshall	2,088	2,152	1					1										
Melrose	2,591	2,591	2													1		
Minneapolis	202,718	301,408	328	39	5	23	5	14	2		2			2	7	25	1	16
Montevideo	2,146	3,056	4		1													
Montgomery	979	1,267	*															
Moorhead	3,730	4,840	8												1	1		
Morris	1,934	1,685	1															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	5		1													1
Northfield	3,210	3,215	2						1									
Ortonville	1,247	1,774	1															1
Owatonna	5,561	5,658	7	1		2												
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	9	2														1
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	32	2		1			2					1		4		
Rushford	1,100	1,011	2													1		
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	3	1														1
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	219	23	4	15	4	1	2		3				7	16	2	13
St. Peter	4,302	4,176	1			1												
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	4															1
Sleepy Eye	2,046	2,247	0															
South St. Paul	2,322	4,510	4						3									
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	7			1										1		
Thief River Falls	1,819	3,174	5	2					1									
Tower	1,111	1,111	1			1												
Tracy	1,911	1,826	5	1														
Two Harbors	3,278	4,990	5	1														2
Virginia	2,962	10,473	17	1		3			3									1
Wabasha	2,622	2,622	5													1		1
Warren	1,276	1,613	0															
Waseca	3,103	3,054	0															
Waterville	1,260	1,273	2															
West St. Paul	1,830	2,660	2															
Willmar	3,409	4,135	2	1														
Winona	19,714	18,583	29	3	1	3			1					1	1	3		1
Winthrop	813	1,043	0															
Worthington	2,386	2,385	2															

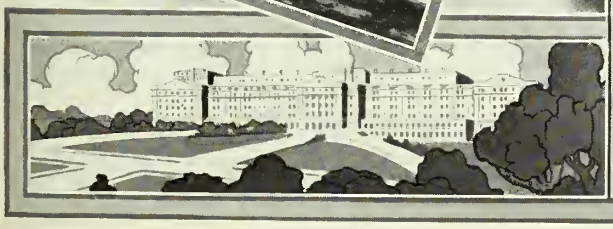
REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	0															
Akeley			0															
Appleton	1,184	1,221	2						1									
Belle Plaine	1,121	1,204	2															
Biwabik		1,690	1	1														
Bovey		1,377	0															
Browns Valley	721	1,058	2			1												
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	5															
Cass Lake	546	2,011	4			1												
Chisholm		7,684	8			1		2							2			1
Coleraine		1,613	3															
Delano	967	1,031	0															
Farmington	733	1,024	0															
Fosston	864	1,055	1															
Frazee	1,000	1,645	1															
Grand Rapids	1,428	2,239	*															
Hibbing	2,481	8,832	6															1
Jackson	1,756	1,907	2				1											
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	2													1		
Lake Crystal	1,215	1,038	4			1										1		
Litchfield	2,280	2,333	3	1												1		
Long Prairie	1,385	1,250	4												1			
Madelia	1,272	1,273	0															
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	1					1										
Nashwauk		2,080	1			1												
North Mankato	939	1,279	2															
North St. Paul	1,110	1,404	*															
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	2															
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	2															
Pine City	993	1,258	4	1											1			
Plainview	1,038	1,175	0															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	1															
St. Louis Park	1,325	1,743	3	1														
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	3						1									1
Springfield	1,511	1,482	1															1
Spring Valley	1,770	1,817	2															
Wadena	1,520	1,820	2															
Wells	2,017	1,755	2	1														
West Minneapolis	2,250	3,022	3	1														
Wheaton	1,132	1,300	1															1
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	2													1		
Winnebago City	1,816	2,555	2															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			2	1												1		
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			8	4					3									
Fergus Falls, Hospital for Insane			24	10												1		
Hastings, Asylum			0															
Minneapolis, Soldiers' Home			4			1												
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			16	1		1												
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			5															
St. Cloud, State Reformatory			0															
Stillwater, State Prison			4	1	1													2
OTHER PARTS OF STATE			658	53	12	44	5	7	15	3	14		1		29	55	4	39
Total for state			1774	172	32	128	17	27	42	3	19		1	5	58	134	8	96

*No report received. Registrar not doing his duty.

158 stillbirths not included in above totals.





A REAL "REST" VACATION

Doctor, some of your patients may be needing a vacation soon—a change of scene, restful diversion and a taste of the outdoor life.

We invite such patients to Battle Creek. Here everything is scientifically planned for rest, recreation and health improvement; the visitor eats, sleeps and lives daily for health in a wholesome, uplifting environment.

The outdoor life, tennis, golf, volley-ball, outdoor swimming, riding, driving, motoring, sailing, tramping — these and many other pleasant recreations are encouraged for suitable cases by the most abundant facilities and favorable conditions. Graduated exercises for feeble patients.

Beautiful expanses of shaded lawn, restful views of charming vistas and the delightful summer climate for which Michigan is noted, all combine to make Battle Creek an ideal resting spot.

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We have prepared for special circulation "THE BATTLE CREEK SANITARIUM SYSTEM," a large souvenir volume containing nearly 200 beautiful illustrations showing equipment and methods, which will be mailed free on request. Please sign and mail the coupon.

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Town .....

State .....

PUBLISHER'S DEPARTMENT

SANITARY CLOSETS

The problem of the closet in any building where there is no water supply is about the biggest one that confronts men in building residences, school-houses, churches, hotels, and other public buildings. It becomes even more acute as we come to understand the evils of the out-door closet, to say nothing of the discomfort and, still more important, the moral side of the problem wherever young people are thrown together.

Sanitarians who have dealt with the problem seem to argree that the problem's best solution is found in the sanitary tank or chemical closet, which now are made in a form quite suitable even for the bed-room, with proper ventilation. When placed in a separate room in hotel, school-house, or the like, they are an excellent substitute for the water-flushed city closet. This form of closet has the approval of government experts, as shown in bulletins, and is highly recommended by many state boards of health.

The Waterman-Waterbury Company of Minneapolis, whose system of heating and ventilation has been adopted by thousands of schools in this country and Canada, make their closets in various forms and sizes. Their house closet, made entirely of steel, is a piece of excellent workmanship.

The company will be pleased to send any physician their illustrated pamphlets.

SODA PHOSPHATE AND LITHIA

Dr. J. W. Harrah, one of the few druggists who are graduates in medicine and have enough interest in the profession to hold membership in the State Association, is the manufacturer of Harrah's Effervescing Salts of Soda Phosphate and Lithia. Dr. Harrah claims that his Salts have twice as much soda phosphate and lithia as any similar product on the market; and we believe Dr. Harrah would not make a false claim.

Our readers are thoroughly familiar with the therapeutic properties of these salts, and it is therefore worth while for them to give Dr. Harrah's preparation a careful trial, thus getting results sought for and saving their patients considerable in the cost price of the remedy.

THE LUNGMOTOR

In our notice, in a recent issue, of the life-saving devices shown in Exhibit Hall during the A. M. A. meeting, we spoke of the great interest shown by physicians in the devices of the Life Saving Devices Co., of Chicago. Chief among these devices is their Lungmotor, claimed to be a marked improvement on all former instrument. We incidentally called it the pulmotor, instead of the Lungmotor.

THE JORDAN SULPHUR SPRINGS AND MUD BATH SANITARIUM

No medical institution started in the West in recent years has meet such instant success as the above institution. It is situated within a few minutes' ride of the Twin Cities in a beautiful valley, and it has been conclusively demonstrated that its sulphur mud baths are unexcelled. In fact its *cures* have been very remarkable, and they are often so speedy as to leave no room for doubt as to the efficiency of the agency.

The prices at the Sanitarium are very moderate, and the resident physician is a thoroughly equipped medical man, so that a physician may send patients to the institution with a feeling that they will be well cared for. For further information address Dr. J. B. White, Resident Physician, Jordan, Minn.

THE BEEBE BIOLOGICAL LABORATORIES

The rapid growth of the Beebe Laboratories in a city like St. Paul, where many private laboratories are found, with a state laboratory near at hand, is evidence that a well-conducted laboratory meets the needs and can gain the confidence of physicians; indeed, it can become of very great value to the profession, just as the Beebe Laboratories has become, both to physicians in St. Paul and in the country. In fact postal conveniences give the man at considerable distance the full advantages of this modern institution.

THE LAKE SHORE SANITARIUM

Each of the Twin Cities is fortunately situated near a large, handsome lake, furnishing a really ideal spot for a sanitarium for the sick and the invalid. There is no such place at Minnetonka conducted under ethical standards; but there is such a "home hospital" at White Bear, and it is now under the medical direction of Dr. Charles Cannon, of St. Paul, and it is so conducted as to commend itself to every physician who respects the standards of the profession.

It makes a specialty of electromedicated mud baths, which are given nowhere else in the United States. This treatment has been found abroad to be highly efficacious in rheumatism, neuritis, blood and kidney diseases, skin diseases, constipation, and liver troubles.

The building has been enlarged and is strictly modern, with screened porches and spacious grounds and a charming view of the lake, one of the most beautiful in the state.

White Bear is only a short ride from either Minneapolis or St. Paul, and one will go a long way to find accommodations equal to those offered at the Lake Shore Sanitarium.

The institution is to be highly commended, and as the profession of the Northwest needs such an institution at home, every physician should, at least, know of its advantages.

SALVARSAN

Prof. Edward Martin, of the University of Pennsylvania, writing on the treatment of syphilis in the latest volume of Keen's "Surgery," vol. vi, p. 111, says: "Salvarsan is indicated in all stages of syphilis. Given in full dosage and repeated in seven days, it produces its maximum safe effect, and if used in the early stages of chancre, seems capable of producing an immediate and permanent cure. The lesions of syphilis yield more promptly to salvarsan than to mercury, and the Wassermann reaction becomes negative in a larger proportion of cases. It is generally accepted that salvarsan should be supplemented by mercury, the latter being given in doses as large as are compatible with bodily and mental vigor, preservation of appetite and digestion, free elimination, and the holding of the normal weight."

THE
JOURNAL-LANCET

The Journal of the Minnesota State Medical Association
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North Dakota and South Dakota State Medical Associations

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THE EARLY DIAGNOSIS OF CANCER*

By MURDOCK MACGREGOR, M. D.
FARGO, N. D.

Statistics show that cancer is increasing. This increase in the cases reported may be due to more careful diagnoses and to the relatively greater number that reach the cancer age on account of the increasing efficiency of preventive medicine, and medicinal and surgical treatment. Be that as it may, it still remains a fact that the death-rate from cancer is enormous.

During the four years from July 1, 1908, to June 30, 1912, 12,213 deaths were reported in North Dakota. Of these, 441, were due to cancer, 1 out of every 28 deaths. There were 216 males and 225 females. With cancer of the breast and uterus excluded, cancer is more prevalent among males than among females. This is due to the greater frequency of cancer of the mouth and stomach among the males.

The United States census reports for 1900 show 1 in 29 of the total deaths due to cancer. English statistics for 1906 show that 1 in 11 of all men, and 1 in 8 of all women, 35 years of age and upwards, eventually die of cancer.

Surgery is the only branch of medicine that holds out any hope for the cure of cancer, and then only when surgical relief is sought while the disease is still localized.

It is our duty as practitioners to keep ourselves well informed on all the signs and symptoms that aid in the early diagnosis of cancer; to recognize lesions that are prone to cancerous degeneration or that might be considered precancerous. We should not procrastinate and cause any loss of time before effectual treatment is instituted.

The death-rate from tuberculosis is steadily decreasing. This has been brought about by the campaign of publicity that is now almost world-wide. Our hope at the present time, to reduce the mortality from cancer, must be based on the inauguration of a campaign along the same lines, disseminating among the laity what knowledge we have of the symptoms and curability of cancer.

We have no means of shortening the period of latency while the host is unaware of the presence of disease. The period during which the patient delays, after becoming aware of the presence of disease, before seeking medical advice, can be shortened only by educating the people on the early signs and symptoms of cancer. The period during which the physician delays before instituting radical treatment, can be shortened by keeping ourselves well posted and by being alert and painstaking in our diagnoses.

Surgical interference in hopeless cases should be avoided, as it helps to create the impression that cancer is incurable. I have known patients to delay in seeking medical advice, fearing a diagnosis of cancer and thinking that in case the disease were cancer there was no hope of a cure.

It is perhaps unfortunate that freedom from pain in the early stages of cancer gives many patients a false sense of security. The public should be taught that pain comes late in the disease when it is no longer localized and when

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ulceration and inflammation have taken place, and that pain with the onset in most cases would indicate a benign lesion.

Every woman should know that 75 per cent of the tumors of the breast are or will become malignant. Any tumor in the breast of a woman over twenty-five should be explored. If the tumor proves benign, no mutilating operation need be performed.

In the breasts of girls at or about puberty nodules may appear, or one breast may develop faster than the other. There is no indication to operate on these unless the nodules should become persistent in their growth.

Retraction of the nipple, or dimpling of the skin, is a positive sign of cancer, even without tumor, and operation should be performed at once.

Ulceration of a nipple in a non-lactating breast, without a history of injury or lues, should be treated as cancer.

In cancer of the female breast before there is involvement of the axillary glands, the percentage of cures is 70 to 80 per cent; and in cases where the glands are involved 20 to 30 per cent, a record that is not at all discouraging.

Cancer of the uterus, to be cured, must be operated on early. When a woman has reached the cancer age, any leucorrheal discharge, or increase in one present, or any irregular bleeding should be looked upon as suspicious of cancer and carefully investigated. Any flowing or discharge coming on after the menopause is almost pathognomonic of cancer.

The statistics from the German clinics give a greater percentage of cures after operation for cancer of the uterus than do those from the clinics of this country. This is probably on account of the campaign of education that has been going on there, bringing their patients to operation earlier.

At least 50 per cent of the cases of cancer of the uterus come to the surgeon too late for operation. The percentage of cures reported after operation for cancer of the cervix ranges from 20 to 40; after operation for cancer of the fundus over 50 per cent are cured.

Cancers of the stomach and intestines present different problems in their diagnosis. The cured cases are the cases that have come to operation early on account of obstruction. The question to decide is the minimum of symptoms that justifies making an exploratory incision to clear up the diagnosis. The relationship of ulcer of the stomach and other irritations of the intestinal tract to cancer is being established, and this fact should be considered in deciding the plan of treatment to be adopted.

Cancer of the lip is of frequent occurrence, and the laity should know that any ulcer of the lip, or of any mucocutaneous borders, that does not heal promptly under treatment, is almost surely malignant, and should be excised. After microscopic diagnosis a more radical operation may be performed if indicated.

The irritation from bad teeth is frequently the cause of cancer of the mouth and jaws.

Cancer of the prostate gland is of frequent occurrence, and this fact should be taken into consideration when deciding the advisability of performing prostatectomy. The mortality from operation in the early stages of prostatic obstruction is low. Much suffering is relieved and the danger of chronic irritation causing malignant degeneration is avoided.

Painless hematuria is frequently the initial symptom of malignant disease of the genito-urinary tract; in cases of tumor of the bladder and hypernephroma of the kidney, almost always.

In cases of carcinoma and sarcoma of the kidney the initial symptom is usually pain in the region of the kidney, and this is followed by the presence of a tumor and sometimes hematuria.

In conclusion: It is estimated that at least 50 per cent of those afflicted with cancer come for surgical aid too late. This can be remedied only by giving to the public what knowledge we have of the early symptoms of cancer and impressing on them that cancer can be cured while still localized so that complete removal is possible.

FOR DISCUSSION SEE PAGE 457

CARCINOMA OF THE UTERUS*

By James Farrage, M. D.
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The cancer problem is the most difficult one before the medical profession today, and if there is a word capable of striking terror to the heart of woman that word is *cancer*. The hopeless expression of a woman doomed to spend her last days in agony or under the influence of opium, is not pleasant to look upon. Such cases are tragic indeed when we consider that "someone has blundered:" either the woman fails to seek medical aid, or the doctor gives her false security by attributing her symptoms to "a little congestion" or "merely the change of life."

Little progress has been made, owing to the belief of the public in its incurability, and the failure of the surgeon to demonstrate to the contrary and to the consequent lack of co-operation between the two. Cancer exists in all nations and is gradually increasing. This increase in the disease, however, does not apply to cancer of the uterus and breast, but to the gastro-intestinal tract. It is estimated that there are 80,000 cases of cancer in the United States and 40,000 deaths annually from this disease.

Cancer of the uterus is a disease of the child-bearing woman, and about 33 per cent of all cases of cancer in women affect the uterus. It occurs most frequently between the ages of 30 and 50 years, more cases occurring during the latter decade of this period than during the former. Cancer of the uterus is divided clinically into cancer of the cervix uteri and cancer of the body of the uterus.

It is highly probable that the greatest predisposing cause of cancer of the cervix is a laceration from miscarriage or labor, causing a focus of irritation, a point of diminished resistance, where the disease may start. Various causes, such as anemia, hard work, and uncleanliness, prevent healing of the laceration, and ulcers exist for months or years, which, if they existed on the outside of the body, would allow the patient no rest until they were healed.

Cancer of the uterus must arise in the epithelial structures. The epithelium of the vaginal portion of the cervix is pavement epithelium, while that lining the cervical canal and cavity of the uterus is of the cylindrical variety. Cancer with an origin in the pavement epithelium, is epitheliomatous in type, and is slow to penetrate other structures, but has a tendency to involve the vaginal wall, either by direct extension or by contact. Cancer arising from the cylindrical epithelium of the cervical canal, is of the adenocarcinomatous type, and is about five times as frequent as that of the body of the uterus. This variety rapidly involves surrounding structures, the lymph-glands being rapidly affected. Metastasis occurs more frequently in this variety, making it less amenable to treatment. The disease arising from the cylindrical epithelium of the body of the uterus does not spread so rapidly to adjoining structures, and, if a diagnosis is made early, is more amenable to radical operation than cancer of the cervical canal.

Cancer of the uterus, as, indeed, cancer in all parts of the body, is more prone to metastasis in young people, owing to a better blood- and lymph-supply, and for the same reason it is quicker to invade surrounding structures. The size of the growth does not always indicate the amount of involvement of the lymph-nodes. It may appear quite recent, and yet metastasis have occurred; the growth may seem quite extensive and yet remain local; induration in the parametrium may be due to an inflammatory process. Ulesco Stroganowa states that irritation of the epithelium by inflammation or mechanical means, may give rise to appearances suggesting cancer and from which cancer may arise. He deems it unwise to subject all these to a radical operation. In support of this he says: "Atypic proliferation of epithelium, even when of such a degree as to produce the picture of a malignant hyperplasia, does not justify the diagnosis of cancer and the extirpation of the uterus, so long as it is accompanied by positive indication of another process, like gonorrhea, erosion, syphilis, or tuberculosis. These alone may call forth and sustain atypic proliferation of this sort. It is the more correct practice to remove the primary disease on which the epithelial growth probably depends; then, after the lapse of a certain time, a new test-incision may be made, or an amputation of the portio, which can then be submitted to microscopical examination to determine the exact nature of the lesion." Heitzman uses a 10 per cent solution of copper sulphate to differentiate ulcer from cancer. If the ulcer is a simple ero-

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sion, a bluish-white coating will form; if malignant, bleeding will occur. By repeating every few days, the erosion heals while the malignant cases bleed more freely with each application. It seems to me that if all lacerations of the cervix were repaired, and we could educate the laity to have this done before the menopause, our cases of cancer of the cervix would be less.

Cancer of the uterus is more favorable for surgical attack than cancer in any other part of the body, and in the early stages it may be eradicated with every possibility of permanent cure. Most cases seek medical aid when the case is too far advanced for radical treatment, and palliative measures only can be used. This condition of things is largely due to the unfortunate ignorance of our women, who fail to recognize the seriousness of leucorrhea, metrorrhagia, or menorrhagia, most of them accepting these conditions as a part of the menopause. Much blame, however, falls to the lot of the physician first consulted, in not insisting on a thorough vaginal examination when the slightest suspicious symptom arises, or not calling a second expert opinion, if in doubt himself. I should like to emphasize the importance of the free broadcast distribution of pamphlets on this subject, by the different state boards of health, setting forth the importance of the early recognition of the disease. *The Ladies Home Journal* of May, 1913, has an article in it, along the lines which the state boards of health might well follow. Quacks who allow cases to progress without proper treatment, should be punished by penitentiary terms.

The usual symptoms of cancer of the uterus are hemorrhage, pain, and discharge. Any irregular hemorrhage in women past thirty years of age should be regarded as suspicious. Bleeding from the vagina in women who have passed the menopause, should be looked upon as very grave. Bleeding may first appear as a slight menorrhagia, especially so if the woman is on her feet and working hard. Other cases present a slight metrorrhagia, a spot of blood on the clothing between the menstrual periods or a streak of blood in the leucorrheal discharge. Again, the hemorrhage of cancer may appear as a reestablishment of the menstrual flow in a woman who has passed the menopause, often to her great satisfaction. Leigh Watson says: "As a rule a cancer of the uterus that can be diagnosed by the history of profuse or bloody flow for several weeks, or if a tumor can be felt, has progressed beyond the border-line between possibility and impossibility of cure."

Pain is not a prominent symptom, and its intensity and character may depend on the direction of the growth of the disease. It may be entirely absent. The pain may be dull and gnawing, or sharp and lancinating, and may be referred to the back or sacrum, both ovarian regions, to the crest or anterior-superior spine of the ilium, down the posterior or anterior aspects of the thighs, or to the rectum. It is usually not prominent till the later stages of the disease. In practically all of a series of cases of cancer of the uterus treated by E. J. Ill, pain in the back and irregular hemorrhage were the only symptoms.

Discharge may be present in cancer of the uterus when there is neither pain nor hemorrhage. It may appear as a leucorrhea in a woman previously free from such discharge. Again, it may be an increase of an accustomed leucorrhea due to hypersecretion from irritated cervical glands. In the later stages of the disease, it becomes puriform in character, of a brownish-color due to admixture with blood, and thinner in consistency. The horrible odor from a breaking-down cancer is characteristic.

Atlee concludes from original research on the subjective symptoms of cancer of the uterus, that, in the incipient stage of the disease, patients, as a rule, will give a history of a sudden attainment of their maximum weight, health, and strength, subsequent to previous ill health conditions. Concurrent with these features of suddenly acquired perfect health, will shortly appear an increasing mental and physical apathy, together with a rather abnormal inclination to sleep. A. W. Russell advises a vaginal examination for any vague local symptoms that cannot be explained, even if there is no discharge, and if thought necessary, call in a second opinion, use the curet, or remove a small wedge of tissue for microscopical examination. This will help in the early diagnosis of all malignant disease of the cervix and uterus. Emil Ries says that "the diagnosis of carcinoma must be based on microscopic evidence."

The Massachusetts General Hospital from 1900 to 1910 operated on 306 cases of uterine cancer. The great majority of these were cancer of the cervix, and the majority were between 41 and 45 years of age. The youngest was 21. In 9 per cent there was a family history of cancer. Of the 306 cases, 52 were inoperable, and 148 suitable only for palliative

measures. Thus 200 came too late for operation, leaving an operable percentage of 35.2 per cent. Of these 200, 133 were followed to the fatal end. The early symptoms were irregular hemorrhage in 130; pain in the back and pelvis in 53; loss of weight and strength in 7; foul discharge in 39. The cases operated upon show a percentage of 24.8 per cent of cures, with an immediate mortality of 25.4 per cent, due in most cases to septic peritonitis. The next most frequent cause of death was shock. In 14 vaginal hysterectomies the immediate mortality was nothing.

The foregoing symptoms are those most usually met with in cancer of the uterus, but it must be remembered that the prominence and intensity of all of them vary and are not applicable to any particular stage of the disease. The three symptoms—hemorrhage, pain and discharge—may be present from the beginning, even before the disease can be demonstrated with the microscope. In other cases all these symptoms may be absent till the disease is well advanced. None of the symptoms are absolutely pathognomonic of uterine cancer, for hemorrhage may occur as a symptom of many diseases during the active menstrual life of the woman. In the post-climacteric period, though hemorrhage must always be a cause of very grave suspicion, it may be caused by endometritis or a benign intra-uterine growth. Pain may be a symptom of many benign conditions, and the foulest discharge the result of a sloughing fibroid. But, however slight the symptom may be that we know may occur with cancer, it must never be overlooked. No procrastination or expectant plan of treatment must be tolerated. If conclusive evidence can not be obtained, the case must be closely watched, and frequent examinations made. I must again emphasize the fact that we must educate our women to view with the greatest distrust all irregularities of menstruation occurring during the active child-bearing period, or, more especially, at or near the menopause or the post-climacteric period of their lives.

Taussig emphasizes the importance of early diagnosis and prompt operation in cases of uterine cancer. He says that "when we read in the reports in the large German clinics that the percentage of operability ranges from 60 to 90, we must indeed be impressed with the fact that conditions are far worse in this country than abroad. The reasons for this marked difference lie partly in the better education of the laity on medical matters in Germany and partly in the careful instruction of physicians abroad in regard to the importance of early diagnosis. A third point of almost equal importance, is the dilatory method employed by so many of our practitioners. Abroad, practically all cases are sent to the large university hospitals as soon as the diagnosis is made. In the United States cases are often treated for a considerable time with caustics. In other instances the physician will do a curettement, either because he does not want to send the case to some one else, or because he does not appreciate the fact that the patient can still be saved by a radical operation.

Complete hysterectomy is the only curative treatment for cancer of the uterus. Unless the operation is a radical one, the operator can never be certain that the excision is in healthy tissue. Practically all authorities agree that an amputation of the cervix, or a vaginal hysterectomy, although they may bring the immediate mortality to practically nothing, are not at all radical enough to completely eradicate the disease. Complete removal of the uterus, therefore, should always be practiced where there is the smallest chance to eradicate the disease. Where the bladder, rectum, broad ligaments, and vagina, or cellular tissue of the pelvis become infected with the disease, hysterectomy can not be performed, and the case must then be placed in that long class of patients where only palliative measures can be used. Where the disease cannot be completely removed by hysterectomy, the operation should not be performed, as symptoms of pain, hemorrhage, and discharge can be relieved by much less dangerous methods. Faure insists that operative treatment should be the rule in every case of cancer in a still movable uterus, irrespective of pregnancy and other conditions. Hysterectomy is exceptionally easy with the large pregnant uterus. If the patient escapes recurrence for six months or a year, the chances are very slight that the disease will return later.

He presents evidence that pregnancy does not increase the liability to recurrence after radical removal of the cancer. Tweedy does not consider fixation of the uterus as a contra-indication to operation. He refuses to operate only when the bladder is involved and pyuria is present. Taussig performed a radical Wertheim on 18 patients; 7 died, 5 within four days, 1 after two weeks, and 1 after four weeks, from suppuration of the pelvic connective tissue. Let us divide these 18 cases into early, advanced, and

far-advanced. The early, in which the disease remained in the uterus, were three in number, and all recovered. The advanced, where the disease had gone to the parametrium and vagina, but not the bladder-wall, were 7 and of these 5 recovered and 2 died. The far-advanced cases showed involvement of the bladder-wall, ureters, and paravaginal tissues. There were 8 of these, and 5 died. Of the 3 who recovered, 2 died of a recurrence within a year. Taussig states that practically every case of cancer of the uterine body can be saved by operation, unless there be gross carelessness on the part of the patient or attending physician.

From a comparison of results obtained by the radical abdominal operation with other methods, it is apparent that the best results are obtained by the radical abdominal method. Infection and the difficulty of reaching the limit of the cancer, make the vaginal route much inferior to the abdominal. The latter may give a much higher mortality, but the ultimate results are better. Wertheim had 20.4 per cent of recoveries after five years by the abdominal method, while by the vaginal route Zweifel had 9.1 per cent recoveries; Chrobach, 4.9 per cent, Döderlein, 10.4 per cent, and Schauta, 3.4 per cent.

In inoperable cancer of the uterus, Samuels recommends acetone. The cavity is thoroughly curetted and then wiped dry. A Ferguson speculum is then introduced, and with the hips elevated one-half to one ounce of pure acetone is poured into the wound and left there from fifteen to thirty minutes, the anesthesia being stopped. The cavity is then packed with gauze soaked with acetone, and the vagina tamponed to absorb any excess of acetone. Subsequent applications of acetone may be made at the home or office twice or thrice weekly. Arendt concludes that radium alleviates symptoms but is not curative. E. J. Ill, treating with body fluids obtained by tapping the abdominal cavity, reports no cures, but some relief of subjective symptoms.

The elder Wathen curettes with a serrated spoon, leaving but little of the wall of the uterus, to which he applies after bleeding has nearly ceased, pure carbolic acid, immediately followed by absolute alcohol. The uterus is then tamponed with gauze and left two or three days. Meantime it may not be amiss to suggest that a combination of several methods, each ineffective alone, may increase the palliative effects, and may even lead, in occasional instances, to a virtual cure of inoperable cancer.

In conclusion, let me say that, until we know more of the cause of cancer, our success must depend on early diagnosis and radical hysterectomy. To gain this success, it is imperative that we educate our women to seek medical advice in all cases of irregular hemorrhage, discharge, or pain.

FOR DISCUSSION SEE PAGE 457

A RÉSUMÉ OF RECENT RESEARCH ON THE TREATMENT OF CANCER*

By A. O. Aaker, M. D.

VELVA, N. D.

In an address before the Academy of Medicine of Toronto, Dr. H. Gideon Wells, of Chicago, made the following statements: "Probably we have nearly reached the extent of our possible progress in the direction of operative skill, at least so far as extensiveness of removal of tissue is concerned, and consequently the surgeons feel that the only possible direction for improvement is in early diagnosis," and "While earlier diagnosis and operation in carcinoma will undoubtedly bring up the percentage of complete cures, yet under the best of conditions the mortality will be high."

We have every reason to believe that Hippocrates, who lived nearly five hundred years before Christ, had one of the superficial forms of cancer in mind when he wrote his famous maxim: "What drugs fail to cure, that the iron (knife) cures; what the iron cures not, that the fire cures; but what the fire fails to cure, that must be called incurable."

From the early dawn of the history of medicine the treatment of this condition has been left to the surgeon, and at the present time, with a mortality rate of from 40-60 per cent in spite of the almost uncanny feats of modern surgery, we are forced to realize our inability to cope with the most dreaded enemy of mankind, by surgical methods alone.

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Statistics during the past few years apparently show that cancer is becoming much more prevalent and widespread. The mortality statistics of the United States in 1907 show a ratio of 73.1 per 100,000 population, as compared with 70.8 in 1906.

It is very probable, taking into consideration the advances made in diagnosis and surgery, that cases are more generally recognized and reported, and we are apt to overrate the increase and become unduly alarmed over the situation, especially if we compare the statistics of the present time with those of a decade ago.

During the past fifteen years the cancer problem has been the object of a vast amount of research work, directed principally towards the discovery of the cause of the disease. The results obtained, as to the etiology have been very meager and conflicting, and I shall therefore not take them up for consideration in this paper.

It would be well, however, before taking up the experimental work done in the treatment of the condition, to consider briefly the different theories upon which the different treatments are based.

In his "embryonic cell-rest theory," Cohnheim advocates the theory that during embryonic development, cells become misplaced and remain dormant until late in life, when they are stimulated to growth by some unknown influence, take on a new character, and, because of the unlikeness of their surroundings, become real invaders, and this appears to be the most generally accepted hypothesis of the medical profession. In connection with this theory, dermoid cysts may be mentioned.

Ribbert, in his large work on cancer, published in 1911, advocates the following theory. He observed that the regeneration of epithelial cells always proceeded from those that occupied a basal position, and that when an epithelioma occurred the boundary line between the epithelial cells and the underlying connective tissue was lost, the epithelial cells infiltrating through the underlying stroma. He reasoned, then, that the connective tissue had lost its normal resisting power, allowing the epithelial cells to reproduce abnormally and become malignant.

Beards'[1] theory is based upon the fact that the trophoblastic cells begin to degenerate and disappear at the same time in fetal life that the pancreas begins to functionate.

The pancreatic secretions then, according to his theory, destroyed the trophoblastic cells, which he decided to be the foundation of cancerous growths.

With this theory in view, he injected the pancreatic ferments, trypsin and amylopsin, into patients suffering with cancer, in the hope that the growth would be destroyed.

The publication of his article attracted considerable attention on account of the very strong claims made for the efficacy of the treatment, and many research workers in this country tried out the treatment, only to be disappointed.

Rushmore,[2] experimenting along this line of treatment on cancer in mice, came to the conclusion that "trypsin has no appreciable effect in causing the cancer to disappear or in inhibiting the growth and function of the germ cells."

The parasitic theory, which was advanced by the New York State Cancer Laboratory about ten years ago, has at the present time only a few supporters. The claims for this theory are based upon—

1. The finding of a minute parasite, which was called the "spirocheta microgyrata," in a very large percentage of carcinomatous mice.
2. The discovery (?) of "cage infection" among animals kept for experimental purposes.
3. The apparently endemic prevalence of the disease in certain localities.
4. Cancer houses.
5. Eosinophilia. Hubbard[3] draws a parallel between the eosinophilia of parasitic diseases, such as amebic dysentery, intestinal worms, trypanosomiasis, echinococcus, malaria, syphilis, pregnant women after the fifth month, and cancer.

In looking over the case-histories in over a year's work at the General Hospital of Kansas City, he found eosinophilia recorded in every case of cancer in which a differential blood-count had been made.

The parasitic theory has been thoroughly discussed and investigated during the past few years. Dr. E. E. Tyzzer[4], Director of the Cancer Commission of Harvard University, states in a recent article: "Among other results of practical importance which the past investigation has yielded, is the accumulation of evidence which tends to show the non-infectious nature of tumors in general."

The experimental work done in the treatment of this disease, has been based principally upon the biologic phenomena observed in mice inoculated with cancer, and it is in this connection that the question of immunity enters.

Many investigators have succeeded in immunizing animals against cancer growth by the injection of autolyzed tissue, and Blumenthal[5] and Lewin[6] have successfully treated cancer in rats with injection of autolyzed tissue.

Levin[7] of the Crocker Cancer Research Laboratory, of New York, states: "I have investigated the subject of immunity from various standpoints. In the first place, these investigations have shown that it is possible to immunize an animal against a subsequent tumor inoculation, not only by a previous injection of an emulsion of living cells, but also by one of autolyzed tissue, i. e., of tissue in which the cells have suffered dissolution, but in which the endocellular ferments apparently remain active." This fact militates against the supposition that immunity in experimental cancer is due to a peculiar cellular activity. This immunity is probably due to action of ferments, and hence is analogous to bacterial immunity.

The composition and action of these "ferments" is unknown, and with our present-day knowledge of chemistry and biology, all work along the line of treatment of cancer with "ferments" must of necessity be purely experimental.

The "atreptic" theory of Ehrlich, upon which many investigators are basing their research in the direction of immunity, and an anti-body or anti-serum has almost as many opponents as advocates. Experimental therapy, however, has been directed largely along these lines, with the result that apparent cures have been effected in a few cases; and in a large number of cases the relief from pain has been marked.

It is true that the apparent "cures" have been few and far between; but we must take into consideration the fact that this experimental work has been carried on only a few years, and, even though no "specific" has been discovered, the fact that a few cases have gone on to what appears to be a complete recovery, should give us hope that some satisfactory treatment and perhaps a specific treatment for cancer can reasonably be expected.

Regarding the occurrence of spontaneous recovery from cancer, of which there are several cases on record, McConnel[8] makes the following statement: "There are, then, two factors of importance in the mechanism of protection against the invasion of foreign cells. On the one hand are the protective ferments of the invaded body, on the other the enzymes of the tumor cells capable of exerting an autolytic action. Theoretically cancer might be controlled either by increasing the activity of the body enzymes or by enhancing the power of the autolytic ferments of the tumor cell."

The late Dr. Eugene Hodenpyl[9] reported the following case of what appears to be a spontaneous recovery from cancer. The patient was a woman, aged 37, on whom a radical operation for carcinoma of the breast had been performed. Multiple recurrences soon followed, and these were removed. Others soon appeared, but on account of the patient's poor condition were not removed. Secondary tumors appeared in the liver, which nearly filled the abdominal cavity. This was followed by an excessive chyliform ascites. Instead of death ensuing, the patient's condition improved. The tumors in the neck and breast gradually dwindled and disappeared. The abdominal tumors grew smaller and became imperceptible, while the liver became smoother and smaller. Four years after the first operation the liver was practically normal in size and position. With the exception of the scars and decreasing emaciation and extreme chyliform ascites, requiring frequent tapping, there is now no indication of the original disorder.

Hodenpyl believed that this woman must have manufactured within her own body some substance in the nature of an anti-body. He withdrew the ascitic fluid under strictly antiseptic precautions and injected it in amounts of from 200 to 500 c.c. in patients suffering with cancer. The general effect of these injections was to induce a temporary local redness, tenderness, and swelling about the tumors. Later softening and necrosis of the tumor tissue occurred, which was absorbed or discharged externally, with subsequent formation of more or less connective tissue. In all cases the tumors have grown smaller; in some they have disappeared altogether. Of the 47 cases treated the greater number of them were distinctly unfavorable, many of them being hopeless and inoperable.

Risley,[10] working under the direction of the Harvard Cancer Commission, at the Massachusetts General Hospital, treated a large series of cases of inoperable cancer along the lines suggested by Hodenpyl.

One group of cancer patients were treated with ascitic fluid obtained from individuals suffering from cancer in all stages; a second group were treated with various normal and abnormal body fluids other than cancerous; and a third group were used for controls.

No appreciable effect was seen from any of the non-cancerous fluids, except spermatocele fluid, which, especially in females, seemed to produce a stimulant effect.

Risley drew the following conclusions from the 65 cases treated with fluids from cancer patients.

1. Great symptomatic relief can be obtained in a good percentage of the patients treated, evidenced by relief from pain and improvement in nutrition and general physical condition.

2. Retardation is noticeable and is prolonged from one to six months in many cases.

3. Ascitic fluids are liable to hasten the process in practically all mouth and jaw cases.

4. This work, together with the use of the *x*-ray in other cases, and curetting and skin-grafting sluggish epitheliomatous ulcers, has impressed me with the fact that much can be done for the relief of the seemingly hopeless inoperable cancer patient. While cures and benefit cannot be expected in every case, in spite of the fact that no cures have been accomplished, the work has emphasized the fact that much symptomatic relief can be given to suitable individual cases.

Drs. Ill and Miningham,[11] in their report of 27 cases treated with ascitic fluid, say: "We have not cured a patient, and in that regard were ill paid for our very great labor. The improvement in the subjective feelings of the patients was so great that we think that our efforts were not entirely lost. For instance, the pain in nearly all cases decreased. In cases that were subject to hemorrhages, it was noted that the bleeding lessened markedly or stopped entirely. The patients usually gained flesh for a while."

The work of inoculation with vaccines, which has passed like a wave over the entire medical world, has also been taken up experimentally by research workers on cancer. Among the first to report any work in this direction, were Drs. Gilman and Coca.[12] Their vaccine was prepared as follows: The tumors removed at operation were immediately taken under sterile precautions to the laboratory. All surrounding connective tissue was carefully removed, and the tumor cut into the finest possible pieces with a scissors and ground ten times in a vaccine grinder. After the first passage through the grinder an equal amount of sterile normal salt solution was added and the emulsion ground further and strained through fine-meshed gauze. These autovaccines were injected weekly, in doses ranging from 5 to 50 c.c.

The cases reported were divided into four classes:

1. Operable cases in which a radical operation would probably effect a cure. (2 cases.)

2. Operable cases in which the chances of a cure by operation were only fair. (2 cases.)

3. Operable cases in which a recurrence was to be expected, either from the extent of the disease or its rapidity of growth. (2 cases.)

4. Absolutely inoperable cases. (6 cases.)

The authors reported that there were no recurrences in the first three groups two years after operation and inoculation.

In the fourth group of cases the authors report a marked degeneration of the cancerous nodules, and out of the six cases in this group report four as being cured.

The authors conclude that the efficacy of the treatment is indirectly proportional to the amount of malignant tissue left in the body and, within certain limits, directly proportional to the amount of tumor-cell substances injected and to the number of such injections made; that a carcinoma in one individual can be successfully treated with injections of material from a carcinoma of the same kind taken from another individual.

I sincerely wish that for the sake of the individual who is doomed to almost a living death from cancer, this paper could end with the above report, which seems to offer so much hope. Unfortunately, work of this nature, which is so purely experimental, must be full of contradictions and anomalies, and the work of Gilman and Coca, which seemed to produce such gratifying results, has, in the hands of others, proven absolutely negative and even dangerous.

Risley[13] treated a series of twenty cases by the emulsion method of Gilman and Coca.

An analysis of his cases shows—

1. In only one case was recurrence prevented or delayed longer than five months.

2. In four cases there was no visible effect from inoculation, either local or general.

3. In neck and jaw cases there seemed to be an increased activity of tumor cells, producing a marked rapidity of growth rather than a retardation.

4. The danger of abscess-formation and of sepsis was always present.

Victor C. Vaughan, in the Shattuck Lecture of 1906, described the preparation of a "cancer residue" with which he hoped to induce the formation of a ferment within the human body

which is capable of destroying the cancer cell through injections of its non-toxic residue into the body from which the cancer was obtained. In brief, this "cancer residue" is prepared as follows:

The cancer tissue, after having all connective tissue removed as thoroughly as possible, is ground in a meat-grinder. In order to remove the salts, fats, wax, several proteid bodies, and traces of carbohydrates, the ground material is washed with water, dilute salt solution, alcohol, and ether. The remaining substance is then heated in a flask with a reflux condenser with from fifteen to twenty times its weight of a 2 per cent solution of sodium hydroxid in absolute alcohol, and by this procedure is split into a toxic and non-toxic group. The toxic portion is soluble in alcohol, the non-toxic is insoluble, and it is this insoluble portion which Vaughan terms the "cancer residue."

J. W. Vaughan began his experimental work with this preparation in 1907, and the results which he reported in his first series of cases[14] were very similar, but perhaps more encouraging than the results obtained by Risley with ascitic fluid.

In a recent article[15], he reviews over 200 cases treated during the past six years with either "cancer residue" or "cancer-cell vaccine." He states that "all cases treated were inoperable or recurrent after operation, so that by far the majority were absolutely hopeless at the start. In approximately 20 per cent of these cases all visible signs of malignant tissue disappeared. This disappearance, however, has not always been permanent and in my cases treated by the vaccine method, which have been without treatment for from two to four years, the percentage of non-recurrences is reduced to ten."

Fichera,[16] working along the lines suggested by Cohnheim in his "embryonic cell-rest theory," has experimented with autolysates of human fetuses. Fichera prepares his autolysate by cutting a fetus, between two and six months, into fragments, adding about twenty parts of normal salt solution and a suitable amount of phenol or thymol as a preservative. The mixture is then incubated at 37° C. for about two months, and tested for sterility prior to its use. The autolysate is injected in doses of 2 to 3 c.c. from two to four times a week and continued for months, according to indications.

Fichera has applied this treatment in 36 cases of inoperable cancer, and 18 have been given a systematic course; 8 of the patients did not seem to be benefited, but in the 10 others a favorable influence seemed unmistakable. In 5 of the patients the malignant tumors seem to have entirely retrogressed, or repeated microscopic examination of excised scraps has shown that the cancer tissue has been transformed into ordinary connective tissue. Of these 5 cases, the cancer was in the breast in 3, and in the lower rectum in 1, and in the neck and head in 1. A brief note on three of these cases may be of interest.

Case 1. Carcinoma of the tonsil, cheek, and wall of the pharynx, with extensive glandular involvement and involvement of the thyroid. The case was examined by Alessandri, and a microscopic examination made. The condition was considered inoperable, and the patient was turned over to Fichera. After a number of injections a complete cure was effected.

Case 2. Cancer of the rectum operated upon by Alessandri. Recurrence of condition. After a microscopic examination the case was pronounced hopeless. A complete cure was effected.

Case 3. A woman with a huge carcinoma of the breast; enormously enlarged axillary and subclavian glands; arm swollen and condition deemed inoperable. After a number of injections the glands completely disappeared, the arm became normal in size, and the tumor was reduced to one-fourth its former size, the remaining tumor probably being due to the replacement of carcinomatous tissue with connective tissue.

Fichera's work has attracted a great deal of attention in this country; but, so far as I have been able to discover, no reports of cases treated by his method have been published, this being presumably due to the fact that not enough time has elapsed since the treatment was introduced to warrant any statement as to the results or probable cure.

I am in communication with three physicians who are doing experimental work with autolysates, one of whom in a recent letter writes: "I have used it (autolysate) for over two years in my practice and have gotten most excellent results in two cases."

My personal experience with Fichera's treatment has been limited to only one case, which has been treated under my direction for the past three months. A short history of this case to date may be of interest.

Mrs. X., aged 61, widow. During the spring

of 1911 she noticed a small ulcer on the left labium. Shortly afterwards she consulted a physician who cauterized the ulcer several times and finally produced what appeared to be healing. No diagnosis of malignancy was made at this time.

During the summer of 1912 she began to fail in health and noticed a swelling in the inguinal region. This continued until November, 1912, when she was operated upon, and a carcinomatous infiltration of the inguinal glands was discovered. Subsequent microscopic examination showed this to be epitheliomatous. A sloughing cavity about three inches long and one inch wide closely followed the operation. The patient gradually lost strength and developed the characteristic symptoms of the condition.

I saw the patient in January of this year, and as a last hope I suggested treatment with Fichera's fetal autolysate. This was very difficult to obtain, and it was not until the latter part of February that I was able to secure a small supply of the fetal emulsion. (The emulsion is prepared by grinding under aseptic precautions a healthy fetus between two and six months of age with an equal bulk of glycerine. This is expressed through sterile gauze and a small quantity of chlorotone added for the purpose of preservation.)

At this time the patient was practically moribund, and according to the relatives a perceptible decline was noted daily. She was in almost constant pain, the temperature ranging from 99° to 104° F., and death seemed to be only a matter of days.

The emulsion was injected three times weekly in doses of from 2 to 3 c.c. After each injection there was a severe reaction, with chills and a temperature running at times as high as 105° F.

After three or four injections had been given there was a distinct improvement in every particular. The pain no longer required morphine; the appetite improved; the mental condition became better; the temperature and pulse between injections remained nearly normal; the sloughing and odor of the wound became less pronounced. From a practically moribund state the condition changed to such a marked degree that, for a time, the relatives were entertaining strong hopes for a recovery.

I was, unfortunately, unable to secure co-operation with the attending physician. Very little attention was given to the wound and practically none to the general condition. In spite of this the condition improved continuously as long as the fetal emulsion was used.

When the supply of emulsion became exhausted, injections of the autolysate were begun, and from this time the condition gradually became worse, so at the present time I entertain very little hope of any further improvement.

I feel that the improvement in this case, which was so marked during the four or five weeks that the emulsion was used, would have been more pronounced and of longer duration had it been possible to have used the emulsion throughout the treatment, and also had proper care of the wound and attention to the general condition of the patient been given.

The work done at the Huntington Cancer Research Institute of Cornell University by Berleley & Beebe,[17, 18] has opened up a new field for experimental treatment. The anti-serum which they have used is prepared by successive injections of specific human cancer extract (the cancer being partially removed by operation) into an alien mammalian species.

It appears that a serum may be developed which, when injected intramuscularly or, still better, intravenously, in increasing doses into the original host, is followed by rapid regression and disappearance of the remains of the tumor; also that there is a strictly quantitative relation between the amount of serum used and the amount of tumor tissue which may be made to disappear.

The present clinical results are described briefly as follows: "Sixteen cases of malignant disease in all stages of advancement have been treated in the last nine months. A microscopical diagnosis was made in all but three cases. Fifteen were cancer and one was sarcoma. Nine received stock serum, one received autogenous serum after a secondary operation, and six received autogenous serum after a primary operation. Of the nine patients receiving stock serum, two were moribund when first seen, and died quite uninfluenced by the injections; another, having cancer of the esophagus, was remarkably benefited for several weeks; one, with an immense cancer of the tonsil, was somewhat benefited temporarily. One very extensive primary cancer of the bladder has not been recently heard from, but was probably not benefited. Of two immense cancers of the stomach, one was entirely unaffected and one slightly improved. One patient (breast case), after two months of injections, is nearly well and in excellent general con-

dition. Another case (uterine cancer recurrent in the bladder) recovered promptly and has remained entirely well for four months.

"One far advanced breast case, receiving a small amount of autogenous serum after a secondary operation, was greatly improved, but subsequently died of an intercurrent acute disease. Of the patients receiving an autogenous serum after a primary operation, one is still under treatment, greatly improved; the others have had no recurrence within a period ranging from three to six months."

The present impression of the writers is that autogenous serum is much more effective than stock serum, and it is believed that the great field of usefulness of the new serum will be to prevent the recurrence of malignant tumors removable in the early stages of operation.

The fact, stated previously, that there is a strictly quantitative relation between the amount of serum used and the amount of tumor which may be made to disappear, makes it imperative that an early and radical operation must be performed, to secure the best results with this serum.

Ehrlich's brilliant work in chemotherapy has stimulated research along chemotherapeutic lines, and various workers are investigating the application of chemical substances on malignant tissue, in the hope that some substance will be discovered which, upon injection into the body, will destroy cancerous tissue without harming healthy tissue.

The work done with eosin-selenium sodium telluride and sodium selenide along the lines suggested by Ehrlich is in such a purely experimental stage that it cannot be taken up for consideration in this paper.

Good results in 25 cases of rodent ulcers and epitheliomas have been reported by Fenwick[19], by the injection of a solution of bichromate of potassium; and Becker[20] reports three cases of inoperable carcinoma treated by the injection of a solution of the hypochlorites of potassium and sodium, in which there was a disappearance of the growth.

I have been unable to find any recent case-reports by either Fenwick or Becker, and the above abstract is quoted from their reports published in 1909.

The investigations carried on at the Barnard Cancer Hospital of St. Louis, by Loeb and his associates, with colloidal copper,[21, 22] appear at the present time to offer much encouragement.

Loeb uses a colloidal copper solution prepared according to the method of Bredig. Each patient receives an intravenous injection daily of from 300 to 400 c.c. of the solution at body temperature.

The injection is followed by a rise of temperature, which is sometimes inaugurated and sometimes followed by a severe chill. From two to four hours later there is a hyperemia and tenderness of the tissue surrounding the tumor, and if the tumor is ulcerating this is accompanied by an increased secretion.

This phenomenon is repeated after each injection during the early stage of treatment, and after about fifteen injections have been given the hyperemia and tenderness begin to disappear, the discharge decreases, and the patient is relieved from pain to a marked degree.

As the published reports of Loeb and his associates do not lend themselves to abstraction, I shall quote from the summary based upon their series of 19 cases treated with the solution of colloidal copper:

"We regard as the most important result of our investigations the conclusion that we now have the means at hand to cause a gradual, although only partial, retrogression of the large majority of inoperable cancers, provided they have nor yet progressed to the last stage of the disease.

"On the other hand, we believe that the action of the intravenous injections of colloidal copper is too slow to render it probable that in the large majority of cases a cure will be accomplished by this mode of treatment. At present it is, however, still too early to make any definite statement as to the ultimate fate of the patients who are under treatment.

"The appreciation of this fact (that colloidal copper leads to a retrogression of the cancer in a large majority of cases) is of great significance in guiding us in our future work; and it gives us hope that when more efficient means will have been found, which will lead to a more rapid retrogression of cancer than has been accomplished so far through colloidal solutions of copper, we may not only be able to cause a partial retrogression, but a cure."

In concluding this paper, I realize that much of it is fragmentary, and this is so because in a subject of this character one cannot generalize, but must state the facts, such as they are, as reported by the several investigators.

This is, of course, best done in the investigator's own words, and it is on this account that my

paper is so liberally sprinkled with quotation-marks.

The bibliography contains a fairly complete and accessible list of reports and articles published in this country on the research done in the treatment of cancer, and a careful study of these reports will do much to dispel the pessimism with which the medical profession as a whole looks upon this phase of the subject.

Research workers are not looking for a specific until the etiology of the disease is better understood. They are seeking to discover some treatment, by purely empiric methods, which will, after a radical operation performed during the early stage of the disease, prevent a recurrence.

If their work on treatment, of the past ten years, is any criterion of what we may expect in the next ten years, it is not unreasonable to hope that in the near future we shall be able to give the victim of this disease a great deal better prognosis for a complete cure than we have been able to do in the past.

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DISCUSSION OF THE THREE PRECEDING PAPERS

Dr. J. E. Countryman (Grafton): This subject has been so very thoroughly covered in these three papers that I would like to emphasize only a few points made.

In regard to the frequency of cancer: There is no question whatever that cancer is more frequent now than it was twenty or twenty-five years ago. Even making due allowance for better diagnostic methods, and for vital statistics being more carefully prepared, still these who have practiced that length of time know that, in a given community, cases of cancer are more frequent than they were at that time. It is now probably the most important disease that afflicts the human race, and in view of the fact that surgical clinics show only twenty per cent of three-year cures, and when we consider that at one time the disease is a purely local one and amenable to cure, there is a vast field for improvement in results. Cancer of the uterus, I believe, offers the best field for improvement under the present condition. All palpable or visible tumors are usually looked after by the patient, but in case of cancer of the uterus, the symptoms are indefinite and very frequently ascribed to change of life or to some other indefinite condition.

In regard to the dissemination of knowledge: Such as has been done in Germany, in a popular way, is a very important thing, and I wish some means could be devised by this Association to carry that out. The preparation of a pamphlet gotten up in a way that could be readily understood by the average woman, would be quite easy, but the practical point of the affair is to distribute it so that it will do good. If it is left to the physician there probably will not be many who would take enough interest in it to distribute it, but probably some method could be devised either through the co-operation of women's clubs or some other means.

The treatment is one other thing that I would like to emphasize. In late advanced cases I think it is far better to discourage operative means. They practically are hopeless, no results are obtained, and it only serves to discourage others in whom results can be expected; and an early operation, even though done in a very common manner is far better than a brilliant late one, as far as results to the patient are concerned.

Dr. G. F. Ruediger (Grand Forks): There were one or two thoughts that came to me while the doctor was reading this last paper. One was in regard to the etiology of tumors. Of course, we do not know at present what is the cause of malignant tumors, but I believe that the parasitic theory has received somewhat of an impetus lately, and I do not agree with the doctor that this theory is not seriously considered by pathologists at the present time. There are several points that seem to argue in favor of the view that parasites are at the bottom of certain tumors of the urinary bladder. Of course, we may change our ideas about the classification of tumors when we find out the exact etiology.

One point that should have been mentioned is the filterable virus Peyton Rouse has obtained from chicken sarcoma. He makes an extract from the sarcoma tissue with a physiological salt solution and passes it through a Berkefield filter to obtain a cell-free filtrate. If now he injects this filtrate into another chicken, he can reproduce the sarcoma. This suggests the presence of a virus of the nature of a living parasite, because he can take the extract from one tumor and reproduce the tumor in another chicken and then make an extract from the second tumor, which also is capable of reproducing the tumor when injected into other chickens. This can be kept up indefinitely, which, of course, would be impossible if the virus did not multiply and eventually it would have to run out.

Another point that may be mentioned in favor of the parasite theory is the work of Edwin Smith on nut-galls, which he considers plant tumors. The galls make their appearance on certain parts of the plant, and later metastatic tumors appear on different parts of the plant, such as the leaves and branches. These tumors in the plant

can be transplanted from one plant to another by inoculation, but perhaps more readily than ordinary tumors can be transplanted from animal to animal. Mr. Smith has worked on this for a long time and has reproduced some very striking microphotographs which show small bodies within the tumor cells. He is of the opinion that these bodies are bacteria, although he has not yet succeeded in isolating them and growing them on artificial media. His theory is that, in the case of the nut-gall, we have to deal with intracellular bacterial effects. The bacteria are in the cells, and as they multiply they secrete a substance which is irritating and stimulates the growth of the cells. As a result, the cells grow much more rapidly than normal, and in reproducing by division each daughter cell receives infected protoplasm, and its growth in turn is stimulated by these infecting organisms, and thus the tissue keeps on multiplying very rapidly and in a most lawless manner, and there is no physiological limitation of growth. These observations, we must remember, were made upon plant tumors, and they may not apply to animal tumors. They do, however, explain very nicely why the metastatic tumor is made of cells like those of the mother tumor because there is a transference from one place to another, not merely of the parasites, but of the infected cells. The infected cells are transferred from one locality to another and keep on multiplying wherever they lodge because the stimulating factor is enclosed within them.

Another point that should be mentioned in this connection is the development of malignant tumors of the urinary tract during infection with Bilharzia hematobia This observation suggests that these parasites have something to do with starting malignant tumors. Quite recently a German investigator, Febiger, found a number of wild rats having papillomatous tumors in the fundus of the stomach, in the tissues of which he found a parasite of the nature of a nematode worm. He made a careful study of these tissues and was able to reconstruct the parasites from serial sections of the tissues. He now made a study of the stomachs of a large number of wild rats, but was unable to find other instances of these tumors, although he finally procured a lot of rats from a sugar-refinery and found that a large proportion of these had papillomatous tumors in the stomach. In all instances, he was able to find the parasite in these tumors, and upon careful investigation he found that the rats were infected with this parasite by eating roaches that had been infected. He was able to produce these tumors experimentally by feeding rats on infected roaches, but not directly by feeding them the parasites or their eggs. It would seem, therefore, that the parasite undergoes a certain stage of development in the cockroach and can infect the tissues of the rat only after having undergone this development in the insect host. This is entirely analogous to the malaria organism which has to pass through a certain stage of its life cycle in the mosquito before it can be transmitted to another human being.

CAUSES AND PREVENTION OF ACQUIRED DEAFNESS*

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MINNEAPOLIS

The purposes of this elementary article are chiefly to emphasize, by reviewing the causes, the importance of prevention of that dread affliction, deafness, and thereby stimulate greater vigilance on the part of general physicians that impairment of hearing may be detected in its very incipiency and its progress promptly arrested.

Good hearing is vitally essential to intellectual progress, for deafness affects not only the cortical center of audition, but that of speech as a concomitant secondary result, which renders the unfortunate child mute, as well as deaf. Mutism, as we know, is rarely due to abnormalities of the speech-organs.

As fully 90 per cent of the cases of deafness are acquired, no reference will be made to the remaining quite uncommon congenital forms. It is acquired infantile deafness to which your attention is especially directed, as in these cases a knowledge of the causes and means of prevention will prove most fruitful in the hands of the guardian of the family health—the general practitioner.

Nature has been generous to man with respect to hearing, having provided him with twice as much as his requirements really demand, and, in addition, has been careful to situate the important organ of hearing deep within the strong petrous portion of the temporal bone, quite remote from injury. For this same reason of seclusion and remoteness from injury, the hearing mechanism has been rendered almost equally inaccessible to treatment. This forcibly reminds us that lost hearing is not easily regained and recalls that venerable proverb about an ounce of prevention.

The age at which most cases of acquired deafness occur is before the sixth year—most frequently between the second and third years. Catarrhal and purulent otitis media, which are secondary to diseases affecting the nasopharynx, are responsible for practically every case.

In all infectious diseases of childhood there is more or less involvement of the middle ear, the

*The original draft of this article was read before the Hennepin County Medical Society, Jan. 15, 1913.

degree depending upon the nature of the disease, influenced by the personal equation of the child. Quite avirulent exanthems are sometimes attended by severe and destructive aural complications. Measles and scarlet fever are the chief offenders, being the fundamental causes in about two-thirds of all middle-ear diseases.

Conspicuous amongst the causes of impaired hearing is our old foe, adenoid vegetations, whose indirect ruinous effects upon hearing are now well understood. Normally, there exists in the epipharynx a small amount of lymphoid tissue, generally regarded as a peripherally placed (atypical) lymphatic gland, whose efferent ducts connect with the superior cervical lymphatics. The structure and histogenesis of diseased adenoids is a process which begins with hyperplasia of the elementary epithelium, hastened and increased by any condition or disease producing irritation or inflammation of the epipharynx, and following this there is a metamorphosis from the mass of epithelium into circumscribed or diffuse net-like follicles of the condensed connective tissue. Adenoids are located in the fornix pharyngis on the superior and posterior walls, sometimes extending to the lateral walls and into the fossa of Rosenmüller, but do not often reach the Eustachian orifice. When the Eustachian tubes are mechanically obstructed by adenoids (a rare occurrence), it is due to their large size and a small epipharynx, and not to their attachment. Lymphoid masses, webs, and bands in Rosenmüller's recess, which frequently accompany adenoids, are much more frequently responsible for defective hearing than hypertrophied lymphoid tissue confined to the superior and posterior epipharyngeal walls. In children the lymphoid tissue of the epipharynx rapidly inflames when subjected to bacterial stimulation; its size increases with each attack; subsequent colds are of frequent occurrence; and epipharyngeal catarrh develops. Now begins, by continuity of tissue, inflammation of the Eustachian tubes; and their lumen is partially or completely blocked, adding to a process which usually extends to the middle ear; then, earache; and we are confronted with an acute otitis media which frequently develops into the purulent form with involvement of the mastoid. The destructive process following may produce irreparable loss of hearing, even to almost complete deafness. Statistics support the claims that adenoids are a prolific source of deafness. It is estimated that about 40 per cent of all cases of adenoids have middle-ear complications of varying degree. McBride and Turner, in a series of 307 cases of adenoids examined, state that 255 (83 per cent) had ear-complications.

The onset of deafness may be so insidious as to escape detection until considerable, often irremediable, impairment of hearing has resulted. Simple hearing-tests will disclose defective hearing and should be applied whenever there is reason to suspect faulty audition.

It is important to know that adenoids may exist without symptoms to attract attention, i. e., there is no noticeable interference with normal respiration and, therefore, it is not a safe premise to expect that adenoids and mouth-breathing must co-exist. Conversely, it is a mistake to assume that all mouth-breathers have adenoids, as frequently nasal obstruction is responsible.

No doubt exists concerning the rôle played by hypertrophied tonsils as factors in the cause of deafness. In addition to their other evil influences upon the general health and normal respiration, they sometimes produce mechanical interference with the normal action of the tubal muscles (the levator and tensor palati) and impair adequate ventilation of the tympanum. Adhesions between the posterior tonsillar pillars and the Eustachian orifices, producing distortion, Eustachian insufficiency, or even collapse of the tubal mouth, are causal factors of much importance. Injury to the tubal orifices and the fossæ of Rosenmüller, inflicted during adenectomy, may bring about conditions more disastrous to hearing than that for which the operation was done.

Eustachian salpingitis, by narrowing the lumen, interferes with tympanic ventilation and drainage; the oxygen of the tympanum gradually becomes absorbed and the resulting negative pressure is followed by mucosal hyperemia, which increases to congestion and engorgement as the rarefication of the air continues, until nutrition becomes impaired, involving the cellular structures in the inflammatory process. The retrograde metamorphosis, if left to continue, will render treatment purely defensive.

In concluding the important causes of acquired deafness, it should be understood that cases of well-marked aural disease are not uncommon in which none of the above causes is present, and no pathologic changes exist in the nasopharynx. In these cases a careful examination will dis-

close the cause about the Eustachian orifice or within the tube proper.

PREVENTION

By tracing consequences back to their fundamental causes, the problem of preventing deafness is rendered less difficult to solve.

Frequent inspection of the ears is an important part of the management of measles, scarlet fever, diphtheria, and other diseases that have marked tendencies to invade the tympanic cavity.

Earache and a red bulging drum are, of course, frank symptoms of acute aural suppuration, but these symptoms are not always present when the tympanum contains fluid. A dull lusterless appearing membrane, frequently of a yellowish hue, indicates the presence of fluid within the drum. Elevation of temperature, to which no other cause is attributable, may be the only guiding symptom of aural involvement.

Fluid within the tympanum calls for prompt release by free myringotomy, for this is not only the best means for terminating aural suppuration, but is an intervention which frequently prevents mastoiditis.

Fortunately, paracentesis and anodyne drops have been generally abandoned as inefficient measures.

Following myringotomy, aural suppuration should be vigorously combated by appropriate treatment, that destruction may be prevented as effectually as possible.

Reiterated experience has shown that early and complete removal of diseased tonsils and adenoids, especially the contents of Rosenmüller's fossæ, is a potent means of preventing deafness, as well as of arresting its progress when present. In addition to these reasons for tonsilladenectomy, the beneficial effects upon a child's general health, by destroying these infectious agents in the nasopharynx, is a well-established fact.

SITUS INVERSUS VISCERUM TOTALIS REGULARIS*

By G. A. Landmann, M. D.

SCOTLAND, S. D.

Oeri estimates that about two hundred cases of transposition of the viscera in man have been reported in the literature, it being said, as far back as Aristotle, who observed this condition in some of the lower animals and probably in man. Thus, although the number of cases reported does not cover the number observed, the condition is rare but justifies the record of a case.

Most cases come to notice after death, which makes my case additionally interesting in that he is living and in all respects in perfect health.

Dr. Kassner, pathologist of the University of Pennsylvania, gives perhaps the best description in the report of an autopsy that I have been able to find. His theory corresponds to Kuchenmeister's and Beattie's and Dickson's text of special pathology, which seems most rational as to the cause of visceral transposition, and they are set forth in this paper.

Many theories have been offered to explain lateral displacement of the viscera, and much time has been occupied in research work to clear up the subject (Beattie and Dickson's text being confined to a very recent epoch). The earlier writers believed that the asymmetrical arrangement of the viscera depended upon the position of some determining organ. Geoffrey Saint Hilair thought that this determining organ was the liver, claiming that the twisting of the primary gut depended upon the formation and the mechanical influences of the rudimentary liver. Considerably later Rindfleisch believed the determining factor to be in the primary cardiac tube, the former stating that the twisting depended upon the flow of blood in this tube, and supported his statement by the fact that water flowing under high tension in an elastic tube will show a twisting of the current and corresponding twisting of the tube itself. This twist is generally in such a direction as to produce the usual situation of the viscera, but under some circumstances of unknown origin the twist may be in the opposite direction so as to produce situs inversus viscerum. Essentially the same view was held by Kolicker, but Lochte very reasonably opposed it by presenting a series of cases of situs inversus partialis (especially dextracardia) in which transposition of the heart occurred without marked changes in the abdominal viscera. His work shows, however, that the cases of true congenital dextrocardia must have depended upon fault in the primary vascular tube because of the fact that all the cases of dextrocardia show anomalies in the course of the ab-

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

dominal as well as the thoracic blood-vessels.

Other writers, among whom are some of the earliest of modern times, notably von Baer and Bischoff, go farther back in the history of the embryo, the former stating that very early in its development the embryo takes a position to the left of the yolk sac in consequence of the natural twist of the masses in the membranes, but that, if the twisting be reversed so that the embryo lies to the right of the yolk sac, situs inversus will originate. Forster claimed that although situs inversus occasionally is in single individuals, it is always present in double monsters, and he shows a drawing of an attached double monster in which this is the case. He believed that the observations of von Baer and Bischoff were in accordance with, supported, and explained this view. The constant appearance of situs inversus in double monsters was soon disproved by Tacke, and later particularly by Lochte and by Kohler. Kohler, while proving that situs inversus does not occur invariably in double monsters, draws upon the fact that such is sometimes the case to put forward the theory that situs inversus totalis regularis can be derived from a symmetrically formed double anlage, in which the twin with normal situs has perished. Schwalbe ridicules this explanation, saying that such a theory is untenable, that Kohler denying the theory of Forster, also denied his own statement, that he says nothing about what form of double monster he means, and supposes altogether too much without offering ground for his suppositions. More recent workers in the field on general biology have traced the earliest signs of transposition much farther back than any of the older writers. Zur Strassen, working with ova of ascaris megalocephalus, found that one egg out of every thirty or forty showed situs inversus, that correspondingly four of one hundred twenty-five adults showed the same condition (indicating that situs inversus did not influence mortality), and that the asymmetry of the embryo already present in the eighth cell-stage indicated whether the final product would show normal situs or inverted situs.

Crampton, working on sinistral snails, found that the cleavage of the egg from the second division on typically is spiral like that of dextral snails, except that it is totally reversed in direction. It seems impressive that these investigators into the origin of asymmetry should all go back to the unsegmented ovum itself for the origin of the condition, and that another investigator, Schultze, working with double monster formation in frogs, should reach the conclusion that double monster formation does not depend upon polyspermis, but, rather, lies in the structure of the uterine egg. Experimental research in the origin of transposition of the viscera dates back to the work of Warynski and Fol with hen's eggs and of Dareste with bird's eggs, who produced the condition, not constantly, however, by warming one side of the egg more than the other.

The most important experimental work undoubtedly is that of Spemmann, which was reported about eight years ago. Working with instruments of drawn glass and stiff hairs of the utmost fineness, and using the eggs of Rana esculenta and triton teniatus, he found that, in an extensive research on monster formation, if he cut out a square medullary plate of the egg, including the portion which later would go to form the midgut, and arranged the section so as to avoid the anlage of the heart and of the eyes and head, and then replaced this in a transposed fashion, he could grow embryos with situs inversus. Three eggs of Rana esculenta gave this result uniformly. He believes that the anomaly depends upon the reversal of that part of the gut in which is inherent a certain tendency of bending, which if undisturbed would lead to a normal situs.

That this condition can be produced experimentally in no way indicates that its spontaneous occurrence depends upon similar factors, and, although some cases apparently are spontaneous, yet the most modern observation would indicate that situs inversus viscerum has its origin in some peculiar constitution of the nucleus or protoplasm, or both, of the unsegmented egg.

The anatomy of this condition has been expounded in the most minute detail by Kuchenmeister, in whose monograph the comparison between the anatomical features seen in the usual position of the viscera and those seen in the situs inversus, is presented in tabular form. The careful verification of all these points as essential to the diagnosis of situs inversus totalis must form the basis of all reports of this condition in the future.

The examination should cover such details as the direction of the usual lateral curvature of the spine, the relation of the two testicles in the scrotal sac, bulging of the liver and cardiac areas, and, within the body (if found on post-mortem) the complete details as to position and structure

of all the organs of the gastropulmonary, cardiovascular, lymphatic, and nervous systems.

Concerning the physiology of this condition: It is amusing to note that among the older writers it was believed to produce a desire to steal and murder on the part of the victim. Hoffman, who performed the autopsy of a young woman exhibiting situs inversus and beheaded for arson and theft, called upon the book of Psalms to support this view.

More modern writers looked to left-handedness as the chief expression of this condition. To explain this, Schalbe believes that in situs inversus the right side of the brain receives a richer nourishment because of the fact that the right common carotid comes directly from the aorta, rather than from the innominate.

To my mind the rich anastomosis in the circle of Willis would seem to offer objection to such a view. As a matter of fact, the majority of cases of situs inversus have not shown left-handedness; the presence of right- or left-handedness might very justly be attributed to habit, and the difficulty of judgment in regard to it is well shown by the case of Cherholzeth. The patient was a blacksmith in whom situs inversus was demonstrated, ante-mortem. He stated that he was left-handed until the age of fifteen years, at which time the scolding and punishments of his master led to his becoming right-handed. Of greater interest, however, from the viewpoint of physiology is the recent observation of Boden. A female patient of his, who clinically showed visceral transposition, but who was right-handed, fell in labor, and her child entered the birth-canal in the right occipitoposterior position, following this mechanism of birth. This child and several others of the same mother failed to show situs inversus, This observation, together with the fact that in no case has hereditary relation appeared to play a part, seems to indicate that the condition is not heritable. The clinical diagnosis of situs inversus must depend upon certain physical signs elicited by examination of the chest and abdomen, to which the x-ray would give added information.

The prognosis of situs inversus is of little consideration, since the expectation of life is as great in such a case as in the individual with the usual position of the viscera. Numerous cases have been seen in advanced life, one of the earliest on record, that of Bedeau, attaining the age of eighty years. The work of Zur Strassen proved that in the case of ascaris megalocephalus the same rule as to expectancy of life holds true.

The family history of our patient has no bearing on his condition. It is as follows:

The father died at the age of forty years from acute dilatation of the heart.

The mother is living and in good health, aged forty-eight.

Brothers, ten. Six of them died in infancy, all of convulsions, and four are living and in good health.

Sisters, one; also died in infancy.

Personal history: The usual children's diseases; up to the time of fifteen years of age was in perfect health; about two years ago complained of pain in the left iliac region, aggravated on strain and pressure; was never confined to bed on account of this ailment until January 5, 1913, when I saw him for the first time and discovered a typical catarrhal appendicitis on the left side. Further examination revealed a complete transposition of the entire viscera so far as one was able to tell.

On January 9, 1913, the patient was operated on at Sacred Heart Hospital in Yankton, South Dakota, by Dr. Hohf, where the findings were verified, and classified our patient as one of situs inversus viscerum totalis regularis.

DISCUSSION

Dr. G. R. Albertson (Vermillion): I have been very much interested in the presentation of this paper, and must admit that, aside from a few theories, there is very little I can say in reference to the etiology of this condition. The essayist has mentioned the fact that in the embryology of the chick, in a very large percentage of cases, the latter is seen to come to lie on its left side on the surface of its yolk-sac. This condition may, in some way, account for the customary position of the viscera in this type of individual. It is a known fact that the primary bending of the heart-tube occurs to the right side, the bend being confined more or less to that portion of the tube known as the aortic bulb. This would, as you see, throw the ventricular portion to the left. It is possibly due to the lack of pressure on the side away from the yolk-sac which causes the bending to occur in that direction. Considering the phenomenon as due to the above-mentioned cause, it is readily seen that if, as is rarely the case, the embryo comes to lie on its right side, we might have here a possible cause for the condition named situs transversus.

The theory in regard to the position of the chick in relation to the cause for situs transversus in the chick does not, however, hold good when considered as a possible explanation for this condition in the human being. The yolk-sac of the human embryo is, as you all know, a very elementary affair, and the embryo cannot be said to turn to either side. The only way that a similarity might be assumed between the two types would be

that, as many embryologists believe that the human being has descended from a type of animal which was originally of an egg-laying species, there might be a cause which could be spoken of as heredity, having an influence in the producing of the condition called situs transversus. This, however, to my mind seems rather unlikely.

Another theory commonly held by embryologists is, that the condition may be due to the peculiar development of the large fetal veins, or venous channels. The omphalomesenteric veins, leading from the yolk-sac to the lower end of the heart-tube, show, at a very early stage, a difference in their development; the left rapidly outstrips the right in its growth in a large percentage of all cases. This condition necessarily brings about the following conditions: First, the left side of the lower end of the heart-tube is raised, tending to throw the upper part to the right; second, the large blood-stream entering the heart-tube from the left vein strikes the right wall of the heart-tube, and here again we find another cause for the primary bending of the heart-tube to the right. This theory, as so far explained, will account for the usual position of the heart, and from it we can readily see that the condition of dextrocardia, which we know is at times found without the transposition of any of the other organs, could be accounted for by drawing the conclusion that, due to some, at present, unknown cause, the right omphalomesenteric vein grew larger than the left, causing the primary bending of the cardiac tube to pass to the left side. In this way we may see that the condition, dextrocardia, may occur alone or in conjunction with a complete transposition of the viscera.

While the conditions as described above are going on, the embryo is still very young; the abdominal viscera are as yet unformed; the intestinal tract is present, but is present as a straight tube. Soon changes begin to occur in this region, the intestine enlarges and elongates, the liver begins to form, and the stomach to rotate to the left, and at this stage we begin to note the effects of the placental circulation. The umbilical veins from the placenta enter, to large extent, into the formation of the liver, and again we find that, as with the omphalomesenteric veins, the left umbilical vein is the one which persists and grows in excess of the right vein. This again may account for the excessive growth of the right lobe of the liver and the rotation of the stomach to the left side. The opposite condition in the growth of the umbilical veins might cause these changes to occur on the opposite side of the body, and situs transversus of the abdominal viscera would be thus produced.

Thus it may be seen that, by modifying the conditions as regards the umbilical and omphalomesenteric veins, we may get any of the conditions to be found in the human being. We may have a situs transversus of the thoracic viscera with normal-abdominal viscera; we may have situs transversus of the abdominal viscera with normal thoracic viscera; and we may have the complete situs transversus, which includes both the thoracic and the abdominal viscera.

Dr. E. W. Jones (Mt. Vernon): There is a patient in my community who has dextrocardia with the large lobe of the liver on the left side and the normal lung-note on the right side taking up the dullness that should be present from the liver. This is a true case of dextrocardia, as there is nothing in the history that would either push or pull the heart to the right side.

As regards the rest of his viscera: We have never opened the abdomen, and do not know anything about them. He has promised us an autopsy when he dies, which probably will not be long, for he has pulmonary tuberculosis.

Dr. S. M. Hohf (Yankton): I have never observed before a complete transposition of the viscera as is shown in this case.

An interesting feature was the manner of examination, and right here perhaps it would be well to emphasize the fact that if all patients who come to our offices were scrutinized carefully, many of these abnormalities would be uncovered. If you look over the medical literature, you will find in recent years that these abnormalities are being uncovered and are being recognized more than ever before, because doctors now are giving their patients more thorough examination than they formerly did. When I first saw the patient I rather doubted the statement of the attending physician that he had transposition of the viscera. We have here complete transposition of the viscera. We found his heart was to the right and the liver area to the left. An incision was made on the left side, and when the abdomen was opened we found the liver, as we suspected, completely transposed; the sigmoid and rectum to the right and the cecum to the left. The appendix was directly under the left rectus muscle.

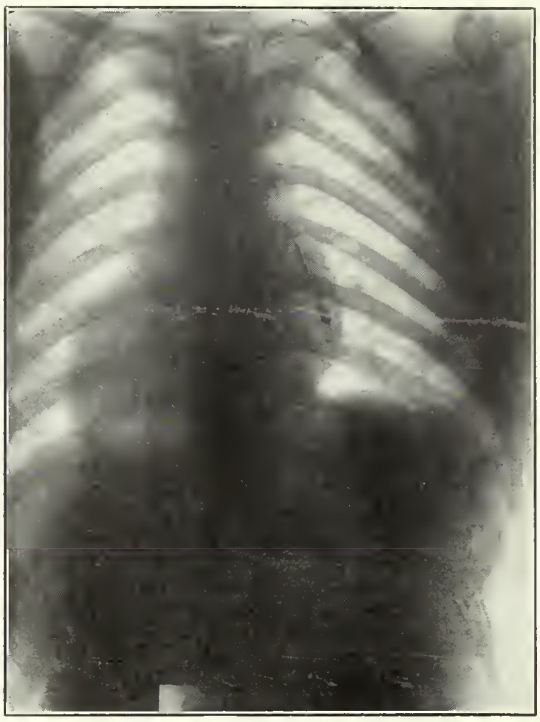
There are a great many theories as to the cause of transposition of viscera, but the one that apeals to me as the most reasonable is that given by Dr. Albertson; but the real cause of the circulatory disturbance is not yet known; that remains for someone of us to discover.

The subject of transposition of viscera is a very interesting one, as it refers to embryology, which is a particularly interesting study. If you will study your embryology, as you did in your school-days, you will find a great many theories as to the cause of transposition of viscera, and these theories are interesting. I would suggest, in order that these abnormalities may be more frequently found, that patients be given a very thorough examination whenever they come to our offices.

THE REMOVAL OF A STICK-PIN FROM THE SECOND BIFURCATION OF THE RIGHT BRONCHUS BY DIRECT BRONCHOSCOPY UNDER LOCAL ANESTHESIA

By John S. Macnie, M. D.
Assistant Professor, Eye, Ear, Nose, and Throat, University of Minnesota
MINNEAPOLIS

On July 29, 1913, Miss D. C., aged 17, supposedly swallowed a stick-pin. Dr. Warren Workman, of Tracy, Minn., whom she consulted, x-rayed her and after locating the pin in the right lung sent her to the University Hospital, where Dr. Bissell made some beautiful plates, which, with the aid of the stereoscope, definitely localized the pin, point up, in one of the smaller branches of the right bronchus, the point being opposite the seventh costosternal articulation.



On August 1st, the patient was given a hypodermic of morphine sulphate, gr. ¼, and atropine sulphate, gr. 1/50, and a half hour later the pharnyx, epiglottis, and larynx, as far as the vocal cords, were anesthatized with 10 per cent cocaine following adrenalin. She proved a most admirable little patient, submitting to the necessary manipulations, without struggle or protest, for a very trying two hours. The patient was seated upon a low stool, the head extended, the back and head supported by an assistant, and a Jackson's laryngoscope was inserted and the trachea wiped with adrenalin. Then with a 2 per cent cocaine solution, which subdued all discomfort and reflex coughing, a Jackson's 7 mm. bronchoscope, 40 cm. long, was inserted into the trachea, right bronchus, and first bifurcation of the right bronchus, which was as far as the lumen of the bronchus would allow the tube to enter. The point of the pin could be seen emerging from the external second bifurcation. The pin proved to be 4 cm. long with an oval glass head about the size of a kernel of popcorn.

The chief difficulty encountered was to enter the point of the pin into the lumen of the bronchoscope, as it persisted in extending across, but it was eventually extracted by means of a long Kilian-Little alligator-jaw forceps.

The presence of the pin in the bronchus had caused no disturbance beyond an occasional coughing fit, but its persistence there would, undoubtedly, have eventually caused serious consequences.

The patient was discharged from the hospital and sent home, apparently as well as ever, in three days.

The skiagram clearly shows the location of the pin.

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THYROID EXTRACT IN NEPHRITIS

The literature of the present day shows a growth in the field of usefulness of thyroid extract.

Dr. J. F. Percy, in an article on nephritis in the *Journal of the A. M. A.* of August 9, 1913, refers to an article by him in the *Journal* of November 9, 1912, on the same subject. His present report is a continued study of the extract in chronic disease of the kidney.

His reports of advanced cases of nephritis, with the usual cardiovascular changes and the relief obtained by the administration of thyroid, is of particular interest. He refers, in a footnote, to three cases of nephritis reported by three colleagues in which the nephritic symptoms disappeared spontaneously on the onset of an exophthalmic goiter, a significant fact, showing the relationship between nephritis and the apparent conditions known as hyperthyroidism. If this association of conditions is relative, then the administration of thyroid extract in nephritis is fundamentally sound and worthy of further study.

Dr. Percy advances the proposition that cases which come to the surgeon complicated with nephritis, mild or severe, should be put on thyroid extract as a preliminary and precautionary measure before an operation is undertaken.

The cases reported by Dr. Percy gave the usual findings, loss of weight, edema, potential or actual enlargement of the heart, diminution in the quantity of urine, low specific gravity, the presence of albumin, hyaline and granular casts, and shortness of breath. These patients were given a tablet representing 2 grains of the dried thyroid-gland substance six times in twenty-four hours, increased, if necessary, to ten or twelve tablets a day. Smaller doses or similar doses given less frequently were found inefficient.

The first result of the treatment may be to intensify all the symptoms, that is, a lessened flow of urine and an increase of the albumin and casts for two or three days. This is followed by a modification of the symptom-group and, finally, a general clearing of all of the symptoms, including a fall in blood-pressure. Apparently, in some of the cases all evidences of nephritis disappeared, particularly those upon whom surgical operations were performed. There is little fear of hyperthyroidism, but, if it should occur, it subsides as soon as the extract is withdrawn. As the urine becomes normal the thyroids are given in less frequent doses for two or three weeks. To insure additional safety the tablets may be given for two or three weeks in each month until there is no further demand for them.

He reports one case of non-obstructive, post-operative suppression of urine due to the removal of a urethral calculus, after which there was suppression of urine in which hot packs, cathartics, enteroclysis, digitalis, and nitroglycerin failed to relieve the situation. Two-grain tablets of thyroid were given every three hours, and in a few days the urine was free and clear.

Here is a field for extended observation, and reports of cases, positive or negative, will prove or disprove the efficiency of the gland substance.

CRIME AND ITS RELATION TO DEGENERACY

The opinions formerly held by penologists, sociologists, and physicians have been gradually undergoing a change; and it seems very difficult for some of the students who are interested in criminal problems, to change their views based upon Lombroso's analysis. For many years the theory of Lombroso, that criminals are born, not made, and are distinguished from the non-criminal class by certain definite stigmata, has now been changed to one in which the individual and his environment are more important than

his heredity. Dr. Goring, a medical officer of a large British prison, has, by careful measurements of thousands of prisoners, satisfied himself that there is no definite criminal type. The general characteristics, as shown by these measurements, demonstrate that convicts belong to the defective class, and that they are forced into crime by circumstances over which they had practically no control. A majority of the men were weak and undersized, and therefore unable to obtain the same recognition that is due to a strong, healthy man. Most criminals therefore, whether strong or weak, are inherently stupid as a result of their defect. It may be argued that there are large numbers among the criminal class that are shrewd and cunning, but they are at best ill-balanced and have a decidedly weak twist in their mental or spiritual makeup.

H. Fielding Hall, who has been at the head of the largest prison in the world, at Rangoon, for years, in an article in the current issue of the *Atlantic Monthly* on "The Causation of Crime," voices the conviction that the cause of crime is "general," not "individual." He lays great stress on the fact that environmental and external conditions operating on the one who is inherently deficient, are the responsible cause for the criminal life. He further believes that the rise and fall in crime is determined by social and economic conditions. This would probably include the political, commercial, and religious unrest which sweeps over the people and breaks down their moral restraint because they become mentally tired and unable to resist unwholesome influences. It has been shown in several instances that after a famine all records for crime are broken because with want and hunger there came physical weakness. The power of resistance was decreased. Men sinned and committed crimes because, in their run-down condition, they could not withstand the temptation.

This latter writer further says that society cannot be exonerated by saying that criminals are born and not made, for they were made by society, by its carelessness, cruelty, and indifference. The average criminal, therefore, needs the attention of the physician, and he should be discovered in his early years; at least his tendencies should be considered during his developmental period, hence the great need for continuous and exhaustive examinations of schoolchildren of poverty-stricken outcasts. Slums of the city should be combed by medical inspectors; dark places opened up; sunlight admitted; and children encouraged to get out into the open spaces. If this can be done there will be fewer defectives, and those who are already deficient can be cared for before their tendency toward crime has developed.

A CONTRIBUTION TO THE PATHOLOGY OF THE LARGE GANGLIA AT THE BASE OF THE BRAIN

No other large area of the brain has remained so much a mystery to the physician as the large ganglia at its base. Areas on the surface are open to experimentation, but removal of any one of the large ganglia at the base, and especially without injury to other neighboring structures, has been practically an impossibility. It is true there are in literature reports of lesions of some of these ganglia, but in each instance the lesion has been such a one as is produced by the closure of a vessel or such a condition as follows gas-poisoning, and in all instances other areas than the one desired to be especially studied have been involved.

Under the heading, "Progressive Lenticular Degeneration," Dr. S. A. K. Wilson, of London, has described a familial disease where there appears a slow destruction of the lenticular nuclei with the production of a remarkable series of clinical phenomena. How closely the destruction is confined to the lenticular nuclei is shown in the fact that, though the internal capsules lie directly beside them, phenomena due to involvement of the capsule are never present in the symptom-complex.

An adequate comprehension of the disease can be had only by a perusal of Wilson's carefully written article in the March, 1912, number of *Brain*. It is worth while to point out, however, that the symptoms of lesions of the lenticular nuclei are sufficiently like those of paralysis agitans to arouse hope that in this region will be found the pathology of that disease. In fact, work is already well under way in the lenticular nuclei of individuals dying with paralysis agitans, with results that are distinctly suggestive.

Though the disease which Wilson describes is extremely rare and therefore of little practical value to the world, the anatomical and physiological basis which he has provided for symptoms whose origin was formerly unknown, constitutes one of the most valuable contributions to neurology for many years.

NEWS ITEMS

Dr. J. T. Rose, of Traer, Iowa, has located at Lakefield.

Dr. Fred Miller, of St. Paul, has moved to Northfield.

Dr. O. H. Wolner has moved from Hanover to Sauk Rapids.

Dr. J. A. Ballard has moved from St. Paul to Hayward, Wis.

Dr. E. H. Grove has moved from Bryant, S. D., to Hetland, S. D.

Dr. T. M. Powell has moved from Polson, Mont., to Big Arm, Mont.

The Coleraine Hospital, of Coleraine, has a handsome new ambulance.

Dr. George H. Coffin has moved from Dogden, N. D., to Ryder, N. D.

Drs. Johnson and Fjelstad, of Red Wing, have dissolved partnership.

Dr. G. L. Hickman has moved from Wentworth, S. D., to Bryant, S. D.

The Masons of North Dakota have decided to erect a Masonic hospital at Dunseith.

Dr. S. A. Donahue, of Minneapolis, has decided to locate in Sioux Falls, S. D.

Dr. Geo. H. Burleigh, of Estelline, S. D., is doing post-graduate work in Chicago.

Dr. S. E. Arnold, of Clinton, has sold his practice to Dr. R. O. Bye, of Minneapolis.

Dr. J. B. Ferguson, of Olivia, has moved to St. Paul, with offices at 931 Portland avenue.

Dr. R. J. Morrissey, of Watertown, S. D., is at home from a course of post-graduate work.

Dr. Anson C. Smith, of Eagle Lake, died last month. Dr. Smith was a pioneer in Minnesota.

Dr. J. W. Bowen, of Dickinson, N. D., was married last month to Miss Ethel M. Summers, of Elmwood, Ill.

The third annual Congress of the Canadian Public Health Association will be held at Regina on September 18-20.

St. John's Hospital of Red Wing is to have a well-equipped nurse's home to accommodate about twenty persons.

It is proposed to double the capacity of the Minnesota State Farm for Inebriates. The present capacity is only fifty patients.

Dr. O. V. Johnson, of Sebeka, has gone to Europe for special study. He will study medicine mainly in London and Berlin.

Dr. F. A. Drake, who sold his practice at Lanesboro some months ago, has repurchased it and will return at once to Lanesboro.

Dr. John Raihala, of Virginia, has decided to move to Salem, Oregon, Dr. A. A. Pesonen, of Duluth, will take Dr. Raihala's practice.

Dr. Hazel Bonness, a recent graduate of the State University, has gone to the New England Hospital for Women and Children in Boston.

Dr. W. D. Kelly, of St. Paul, was elected chief of staff of the St. Paul City and County Hospital last week. Dr. Frederick E. Leavitt was elected secretary.

Dr. Thos. S. Paulson, of Hills, is doing post-graduate work at the Chicago Policlinic. During his absence, Dr. H. F. Schaaf, of Minneapolis, has charge of his practice.

The Harvey Hospital Association, of Harvey, N. D., has let the contract for erecting its building, which will cost about $20,000 and is to be completed by December 1st.

Dr. B. J. Branton has let the contract for remodelling the Willmar Hospital, including a new wing 18x32. The new building will have eighteen rooms for patients.

Dr. G. F. Reudiger, of the North Dakota University Health Bureau, has been visiting the larger cities of the state in the campaign for the extermination of flies.

Dr. J. P. Sedgwick, of Minneapolis, has gone to London to attend the Congress of Physicians and Surgeons. He is a delegate to the English-Speaking Conference on Infant Mortality.

An evidence of the effectiveness of the new law in North Dakota against unfit marriages, may be seen in the fact that last month over twenty certificates for marriage were refused.

The licenses of Dr. Thor Miller and J. J. Reilly, who are now serving penitentiary sentences for doing abortions, have been revoked by the North Dakota State Medical Association.

Dr. James F. Cravens, formerly Indian physician at the Cheyenne Agency of South Dakota, and also superintendent of the State Hospital for Insane, died in Chicago last month at the age of 78.

The Otter Tail County Tuberculosis Sanatorium building is well under way, and will be ready for occupancy early in the fall. It will have

thirty-nine beds. The county will draw $18,500 from the state fund.

The Minneapolis School Board is planning to extend medical inspection to all the schools of the city, instead of only forty-three of the sixty-five grade schools. The entire work will cost about $25,000 a year.

The commissioners of Clay and Becker counties have unanimously agreed to join hands in building a tuberculosis sanatorium for consumptives. About $35,000 will be expended, one-half coming from the state.

Dr. R. C. Dugan, who practiced over twenty years in Eyota and who recently went temporarily to Nebraska, has located permanently in Winona, where he will have a larger opportunity for surgical work.

A number of cities in Minnesota propose to do away with all noxious weeds, as can be done under the state law, and it is believed the effect will be to prevent at least some of the hay fever that drives so many people away from home.

Dr. Robinson Bosworth, of St. Paul, has been elected executive secretary of the Minnesota Association for the Prevention and Relief of Tuberculosis. He is also secretary of the State Advisory Commission, which pays his salary.

Dr. W. S. Fullerton, formerly secretary of the Minnesota State Board of Medical Examiners, has won the suit brought against him by the state to recover fees received and spent by the Board. The case will now go to the State Supreme Court.

The thirtieth anniversary of Dr. A. B. Ancker's connection with the City and County Hospital of St. Paul was made the occasion of a surprise reception to the doctor on August 1st at the hospital. The staff and the 116 nurses of the institution were the hosts.

Dr. H. A. Morriss, of St. Louis, Mo., has moved to Minneapolis, and will have offices in the Lowry Hill Apartments. Dr. Morriss will confine his work exclusively to consultation practice for the diagnosis of chronic diseases of the sigmoid, bladder and stomach by the endoscope.

The Goodhue County Medical Society, at its July meeting in Red Wing, passed a unanimous resolution in favor of the establishment of a county tuberculosis sanitarium. Statistics show that there are nearly 200 cases of tuberculosis in Goodhue County, with about 40 deaths from this disease annually. A building to cost about $30,000 would be needed.

Dr. F. R. Smyth, the energetic health commissioner of Bismarck, N. D., is out with a vigorous letter in favor of enforcing the law providing for the collection of accurate vital statistics. He claims that the North Dakota State Board of Health has been derelict in the matter and that the statistics have been unreliable.

The McLeod County Medical Society held their annual picnic at Lake Marion, Brownton, Minn., on July 31st, to which the dentists of the county were invited. Dr. Bracken and Mr. Blakey of the Minnesota State Board of Health were present. The subject under discussion was "A Survey of the Tubercular of McLeod County, and the establishment of a sanitarium for the tubercular of McLeod County.

St. Paul is about to adopt stringent measures in dealing with tuberculosis. The health department will assume the work of the Anti-Tuberculosis Committee of the citizens, and put the work into a special division of the health department, under the supervision of Dr. Paul B. Cork of the board. The Wilder Charity and the Associated Charities will co-operate with the health board in the relief work. They will be combined forces that can do things.

The first case of pellagra known to have originated in Minnesota was discovered in Rochester several days ago in the practice of Dr. Charles Granger, who will give a full report of the case at the next meeting of the State Association. Some months ago a case went to Rochester from Willow City, N. D., and was first diagnosed there. The patient soon died. It is hoped that this new case will lead to a better understanding of these cases, and no doubt not a few will be found, from time to time, in the Northwest.

The citizens of Ft. Pierre, S. D., tendered Dr. C. J. Lavery a farewell banquet last month on the occasion of his removal to Aberdeen to enter a larger field of work. Many kind words from distinguished citizens were spoken at the banquet of Dr. Lavery and a Masonic watch-charm was presented to him. Dr. Lavery has practiced at Ft. Pierre for about a quarter of a century, and has taken a prominent part in all state and local movements for community betterment. He has also been prominent in medical circles, having been a delegate to many state and national and some international gatherings of medical men. Ft. Pierre honored the profession as well as her respected citizen in her appreciation of the services of Dr. Lavery.

The Wabasha County Medical Society held its forty-fifth annual meeting at Wabasha last month. Papers were read as follows: President's address, "The Press as a Factor in Public Health Work," by Dr. D. P. Dempsey, of Kellogg; "An Unusual Case of Intestinal Toxemia," by Dr. A. A. Rankin, of Zumbro Falls;" "Management of Nose and Throat Cases as a Phrophylactic and Therapeutic Measure in Some Other Diseases," by Dr. L. C. Ingram, of Red Wing; "Congenital Dislocation of the Head of the Femur with X-Ray Picture," by Dr. W. T. Adams, of Elgin; "History and Statistical Résumé of the Recent Diphtheria Epidemic in Lake City," by Dr. E. H. Bayley, Health Officer. The election of officers results as follows: President, Dr. E. H. Bayley, Lake City; vice-president, Dr. A. A. Rankin, Zumbro Falls; secretary-treasurer, Dr. W. F. Wilson, Lake City; delegate, Dr. W. J. Cochrane, Lake City; alternate, Dr. M. J. Shaughnessy, Wabasha.

The Sioux Valley Medical Association of South Dakota held its eighteenth annual meeting at Sioux Falls on July 23d and 24th, with a good attendance of physicians from Minnesota, Iowa, Nebraska, and South Dakota. On the 22d a meeting of the Eye, Ear, Nose and Throat men from the territory covered by the Sioux Valley Association was held and a new society known as the Northwestern Oph-Lar-Rhin-Otic Society was organized, and the following officers elected: President, Dr. J. G. Parsons, Sioux Falls; vice-president, Dr. L. N. Grosvenor, Huron; secretary, Dr. F. E. Franchere, Sioux City; treasurer, Dr. S. A. Keller, Sioux Falls; censors, Drs. L. G. Hill, Watertown; H. J. G. Koobs, Scotland; H. H. Frudenfeld, Madison. The following program was given: "Blood-Clot Mastoid Operation," by Dr. J. G. Parsons, Sioux Falls; "Sluder Operation for Tonsillectomy," by Dr. F. I. Putnam, Sioux Falls; "Bronchoscopy and Esophagoscopy," by Dr. Frederick Roost, Sioux City. The program of Sioux Valley Association contained the names of leading men from Nebraska, Iowa, South Dakota, and Minnesota.

PHYSICIANS LICENSED AT THE JULY (1913) EXAMINATION TO PRACTICE IN SOUTH DAKOTA

UPON EXAMINATION

Blong, Peter H.....Wolsey, S. D.
Chatel, Arthur N.....Albee, S. D.
Crecelius, Harry A.....Lake Norden, S. D.
Dameron, J. E.....Raymond, S. D.
DeVries, Albert.....Platte, S. D.
Donahoe, S. A.....Minneapolis, Minn.
Gillis, F. Daniels.....Mitchell, S. D.
Hills, Whitford C.....Egan, S. D.
McKie, John F.....Huron, S. D.
Noble, Albert G.....Howard, S. D.
Park, Leroy L.....Beresford, S. D.
Pugh, George F.....White River, S. D.
Ratte, H. F.....Los Angeles, Calif.
Robb, Harry J.....Howard, S. D.
Ruhl, Jordan E.....White River, S. D.

BY RECIPROCITY

Andrews, Charles P.....Westport, S. D.
Bryant, Francis A.....Spencer, Neb.
Trieweiler, John E.....Bloomfield, Neb.

PHYSICIANS LICENSED AT THE JULY (1913) EXAMINATION TO PRACTICE IN MONTANA

Ackley, Newton B.....P. & S., Keokuk, 1898
Bradbury, James T.....Northwestern, 1896
Douglass, Walter L.....Creighton, 1913
Lavelle, Thomas E.....Harvard, 1913
McLellan, Gordon L....P. & S., Chicago, 1913
Maynard, Ernest B.....U. of Michigan, 1898
Pflock, John J.....P. & S., Chicago, 1913
Place, Benoni A.....Rush, 1910
Reynolds, James B..U. M. C., Kansas City, 1913
Schrader, Herman F.....Jefferson, 1910
Sears, John L.....Creighton, 1909
Snyder, Karl A.....Northwestern, 1910
Tonkin, Albert B.....Univ. of Colorado, 1904
Wernham, James I.....Rush, 1902

PHYSICIANS LICENSED AT THE JULY (1913) EXAMINATION TO PRACTICE IN NORTH DAKOTA

UPON EXAMINATION

Ewing, John.....Hahnemann Med. Col., 1909
Frogner, Guy S.....U. of Illinois, 1911
Haraldson, Olaf.....Rush, 1912
Hunt, Charles E.....Northwestern, 1913
Irvine, Howard T.....U. of Manitoba, 1909
Miller, Hugo H....P. & S., Minneapolis, 1892

BY RECIPROCITY

Ballard, James A.....U. of Minnesota, 1904
Chapman, W. S.....Rush, 1906
Coulter, Herbert W.....Trinity, Toronto, 1903
Moreland, J. W.....Northwestern, 1906
Reedy, R. Graham.....P. & S., Chicago, 1910

Seven candidates failed to pass upon examination; and two failed by reciprocity.

PRACTICE FOR SALE

A $4,500 practice (which can be increased by doing some surgery) for sale, in eastern North Dakota. Population, 450. Nearly all Scandinavians; large territory in finest farming community; collections, 95 per cent. $2,500, part cash, buys valuable property and good-will. An excellent opportunity for a Norwegian-speaking physician. Address G. A., care of this office.

PRACTICE FOR SALE

A $5,000 practice in southern Minnesota; railroad town of 700; with electric lights, city water, churches, high school, four mails daily, and good roads. Collections, 95 per cent. No real estate; moving to city. Address L. M., care of this office.

OFFICE FOR RENT

Office for dentist or doctor in the Masonic Temple, Minneapolis, with reception-room in common with two physicians. Address or call at 504 Masonic Temple, Minneapolis.

PRACTICE FOR SALE

In southern Minnesota. A $3,400 practice for invoice of drugs and office equipment, about $600. Town of 1,000; thickly-settled country; good roads, and thrifty people. Thorough introduction. Answer soon. Address D. K., care of this office.

ASSISTANT WANTED

An up-to-date assistant, German-speaking, one who can handle some eye-work. Salary, first year; partnership later, if desired. Address B. F., care of this office.

UNUSUAL OPPORTUNITY IN MINNEAPOLIS

A live practice for sale by a doctor who gives it up to accept an appointment at the University of Minnesota. A practice of about $4,000 a year in a good residence district. A practice that can be taken over and held together by a competent man.

I will accept $400 cash and the balance, $100, as soon as buyer is satisfied with agreement. Address P. M., care of this office.

PRACTICE FOR SALE

A good opportunity to secure a fine practice which runs from $6,000 to $7,000 a year. Located in southwestern Minnesota in one of best and liveliest towns of 800 people in the state. Good territory, good roads, good pay. Practice established for 20 years. Will sell the office building, which is large enough for a hospital. Electric lights and water and sewer connections. Wish to go to the city. Address C. M., care of this office.

PRACTICE FOR SALE

I offer my practice and real estate for sale. Location, Southern Minnesota, in rich farming country, thickly settled. Germans; good pay; have done $6,500 cash a year. Am going to the city. Address S. E., care of this office.

WANTED—LOCATION FOR EYE, EAR, NOSE, AND THROAT WORK

Suitable location in small or large city. Would associate with a general practitioner. Can do operative work. Have also done successful general practice. Address C. S., care of this office.

OFFICE FOR RENT

The office formerly occupied by Dr. J. Clark Stewart in the Syndicate Building, Minneapolis, is for rent. Inquire of Dr. J. E. Moore, 616 Syndicate Building, Minneapolis.

OFFICE FOR RENT WITH PRACTICE FREE

A Minneapolis physician who wishes to spend a year in Europe, will rent his furnished office and equipment at a moderate price and give such of his practice as naturally follows the office in his absence. He does general and surgical work, and has occupied his present office, in the Donaldson Building, five years. Address M. M., care of this office.

PRACTICE FOR SALE

$3,000 to $4,000 cash practice in growing eastern South Dakota railroad center of 600 population, and complete office fixtures, costing about $400. Will sell practice and fixtures for $300 if taken at once. Good roads, large territory, good pay. Rich Scandinavian and German community. This is a snap and must be taken at once. Must have cash and good recommendations. Address F. B., care of this office.

PRACTICE FOR SALE

A fine location for a general practitioner in a growing North Dakota town of 300 population. Large territory and no competition; nearest doctor is 11 miles distant. Country is well settled and over 90 per cent are good payers. A doctor possessed of good business methods, as well as good professional ability, ought to earn $3,000 and upwards annually. To purchaser of neat cottage and barn situated on two choice residence lots, and small office building with lot on Main street for $2,000, I will hand over location and good will. My object in selling is to specialize. Address H. H., care of this office.

PHYSICIAN WANTED

The Church Mission Hospital under the direction of the Rt. Rev. Henry D. Aves, D.D., Bishop of Mexico, situated in the mountains, several hours' ride from Mexico City, and among a needy and scattered Indian population, is seeking a young physician, graduate in medicine and having had some hospital experience. An unmarried man and a member of the Episcopal Church is preferred. A salary of $1,000 United States currency per year and living-quarters are provided. Traveling expenses to Mexico would also be provided. For further information, address the Rt. Rev. Henry D. Aves, D.D., Apartado 151, Guadalajara, Jal., Mexico.

PRACTICE FOR SALE

A $3,000 to $4,000 practice, that can be increased by a capable surgeon, in a manufacturing, railroad division, and farming village of 2,000 population, 100 miles from Twin Cities, given to purchaser of my office equipment. Reason for selling: Am going to specialize in the city. Address M. S., care of this office.

PRACTICE FOR SALE

An unopposed $4,500 practice established for 15 years in a good live town in western Minnesota. Nearest opposition 10 miles in one direction and 20 in any other. Surrounding country thickly settled by prosperous farmers. Good collections, good roads, good schools, and good crops. $500 takes practice, lease of offices of three rooms, and office furniture. Address B. M., care of this office.

Cooling,
Wholesome,
Convenient.

When the heat of Summer makes the sick-room of the weary fever patient seem almost unbearable, there is real "consolation" in a glass of iced

INSTANT POSTUM

with a little lemon juice and the faint, agreeable aroma of just a "rub" of the lemon peel along the edge of the glass.

There is simple goodness and comfort derived from this delightful, refreshing drink.

Cream may be added—which blends evenly with the liquid postum—and a little sugar, if the attending physician sees no objection to the sugar.

Instant Postum is made of clean, hard wheat [including the brancoat, with its valuable mineral content, the phosphates] and a small percentage of New Orleans molasses which is changed into "caramel" in the process of roasting.

This famous health beverage, free from caffeine or any other drug, is, in every way, ideal for the sick room.

It is quickly, conveniently and uniformly prepared by placing a teaspoonful of

Instant Postum

in a cup, and adding a little *hot* water which dissolves the powder instantly; then add cold water and cracked ice, and flavor as above. This forms a real "oasis in the desert" of the fever patient, Doctor. Suppose you suggest it to the nurse.

The *Clinical Record,* for Physician's bedside use, together with samples of **Instant Postum, Grape-Nuts** and **Post Toasties** for personal and clinical examination, will be sent on request to any Physician who has not yet received them.

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PUBLISHER'S DEPARTMENT

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The Gluek Brewing Company claims that their beer has all the properties and is brewed under conditions that make it an ideal beer for weak, nervous, run-down people.

THE MILWAUKEE SANITARIUM

In medical lines at least, Dr. Richard Dewey has made the name "Milwaukee" famous, for no sanitarium in the country is better known than the one he has brought to so high a degree of efficiency in the care of cases that find no help outside of a sanitarium.

The Milwaukee Sanitarium has beautiful grounds and handsome buildings, but its management has made it famous. It has an able staff as well as an able head.

BIOLOGICAL PRODUCTS AND HOW TO USE THEM

The above is the title of an informing booklet of 36 pages on anti-toxins, serums, stock bacterins and autogenous bacterins, and smallpox vaccine produced by the Abbott-Slee Laboratories and sold by the Abbott Alkaloidal Co. Much of the information is somewhat elementary, but it will be all the more appreciated by many.

It can be had for the asking.

SALVARSAN IN UROLOGICAL SYPHILIS

Chetwood, of the New York Polyclinic Hospital, in his new work on *Urology*, says: "The use of salvarsan in urogenital syphilis has been followed by brilliant results and no doubt the introduction of this treatment will in many instances revolutionize the methods adopted and take the place of the older remedies to a considerable degree. It has been found that syphilitic children bear the treatment very well, in spite of the earlier expectations to the contrary."

SIMS' MALTED WHEAT

When one gets tired of eating cereals without a distinct and appetizing flavor, it is a pleasure to turn to one with a decided and a delicious flavor, such as that of Sims' Malted Wheat, a Minneapolis product.

The invalid especially, with a jaded appetite, or none at all, finds the malt flavor particularly agreeable. But Sims' Malted Wheat has more than flavor; it has a protein content that gives nourishment in the most assimilable form. It is an ideal food for the well and the sick.

VICTORIA SANATORIUM AND COLFAX MINERAL SPRINGS.

One of the best-equipped and home-like institutions in the West is the Victoria Sanatorium at Colfax, Iowa. The building is a modern structure of seventy rooms, situated in an attractive country, and the waters are quite equal to those of many famous springs abroad.

The treatment and waters are indicated especially in all metabolic and eliminative disorders. A few selected alcoholic and drug cases will be received, but no mental cases.

Dr. Florence Brown Sherburn is the medical superintendent, and she will be pleased to give any information desired.

OCULIST AND OPTICIAN TEAM-WORK

As the advancement of medical science within recent years revealed the close relationship between most eye-troubles and the patient's general health, a doubt arose in the medical profession, and even among laymen, as to the ability of the best trained optician properly and effectively to fit glasses. On the other hand, the many pronounced failures of graduated oculists properly to fit glasses gave the opticians opportunity to discredit them, and to do so in the most courteous manner, even indeed by showing superior work.

In view of these unquestionable facts, why not have team-work in the serious matter of the care of the eyes? The T. V. Moreau Company of the Twin Cities saw this point some time ago, and now a physician of high standing, Dr. Paul A. Higbee, has the medical department, and Mr. T. V. Moreau, a thoroughly-trained optician, has the optical department of the company work, and their team-work is producing results most gratifying and helpful to their patients, and it commends the company to the general practitioner who is so often called upon to advise his patients along these lines.

PREPARE FOR SCHOOL DAYS

And soon the little army of young humanity, after a long vacation, will trip back to school to commence the long period of mental and bodily stress and strain inseparable from indoor confinement and long hours of work and study. Is it not the part of wisdom to see that they are well prepared for what, to many of them, is really a serious ordeal?

If the boy or girl (especially the girl at the age of puberty) is anemic, easily tired, pale and listless, it is certainly a good plan to correct this condition at once, rather than to wait until the condition is more serious. If the young pupil is fortified by the toning and building up of blood and tissue, the prevalent school infections, measles, scarlet fever, and diphtheria, are much more likely to pass them by. Pepto-Mangan (Gude) is especially indicated as a blood tonic and general reconstituent for children, as it is palatable, easily taken, free from disturbing effect upon the digestion, and devoid of constipating action. It can be taken for any length of time without danger of injury to the stomach, and its effect is soon noticeable in increased appetite, improved color, better spirits and increased weight.

DECISIONS IN MALPRACTICE SUITS

Tradition has it that Philadelphia is the fountain-head for legal lore and the Philadelphia lawyer is credited with having superior ability and inexhaustible knowledge. Nevertheless, only last month one of the leading attorneys in that city was compelled to call upon the Physicians Defense Company for a dozen citations of cases involving the alleged failure to properly diagnose the fracture of a shoulder-joint. In two days he had information that will enable him to show that the law in the case, not as laid down on general principles, but as interpreted in cases based upon identically the same circumstances, relieves the physician from liability for an honest error of judgment.

This one feature of the service rendered by the Phy-

sicians Defense Company to its clients is alone worth the amount of the annual premium. Specialized knowledge is just as valuable in defending the physician's reputation as in the treatment of cases which seemingly baffle the efforts of the ordinary physician.

Nowhere else in the country is there as complete a collection of decisions in malpractice suits as that possessed by the Physicians Defense Company in their home office at Fort Wayne, Indiana. Nowhere can such a fund of information be found, so compiled, indexed, and annotated that citations of cases and quotations on any particular point of law or medical topic can be instantly found. Sometimes such citations are absolutely necessary to secure a favorable verdict in a malpractice suit, and those who are not acquainted with the form of protection offered by the Physicians Defense Company will do well to write their home office at Fort Wayne, Indiana, and secure full particulars.

HAY FEVER: "DISEASE OF MYSTERY"

Dr. S. Fuller Hogsett, of Pittsburg, in his excellent paper, "An Experimental Therapy in Hay Fever," read at a meeting of the University of Pittsburg Medical Society, and published in the April (1913) issue of American Medicine, New York, points out that hay fever, instead of being a disease of modern origin, as many may have presumed, is in reality centuries old.

In 1912 Dr. Hogsett treated a number of cases successfully with Mixed Infection Phylacogen. His observations as to methods and results are of interest and value. "In carrying out the Phylacogen treatment," he says, "I have found that the initial dose should be small when given either subcutaneously or intravenously. It has been my procedure to begin with a 2 c.c. dose subcutaneously or one-half c.c. intravenously. . . In giving the subcutaneous injection I usually select the insertion of the deltoid or the area just below the scapulæ. The latter seems to be the ideal spot, as absorption takes place very readily and the complaints from the local reaction are much less. I repeat my injection either daily or on alternate days, the interval to be determined by the clinical condition of the patient. It is seldom necessary to give more than four to six injections, the symptoms often disappearing after the second or third injection. Almost immediate relief is noted by the patient. The irritating discharges from the eyes and nose are diminished in amount, the sneezing is lessened, the dyspnea is relieved, and the patient usually sleeps comfortably. All cases that I have treated successfully have remained well through the season. I have yet to record only one failure, but I have not had a sufficient number of this class of cases as yet to warrant a positive claim that this remedy will act in all forms of the disease."

Clinical experience with Mixed Infection Phylacogen in the treatment of hay fever is inconsiderable as yet. The product had its inception in 1912, when the season was well advanced, and the opportunities for its employment were necessarily limited. The next two months will undoubtedly tell the story of its applicability to this hitherto intractable disease, and the results of a more extended trial will be watched with a deal of interest.

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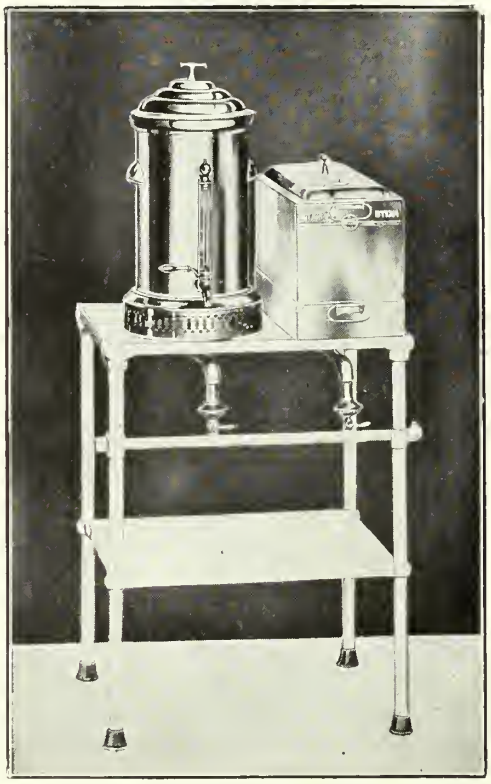

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PELLAGRA, WITH REPORT OF TWO CASES

By CHAS. T. GRANGER, M. D.
ROCHESTER, MINN.

Five or six years ago pellagra was practically unheard of in America, yet today it exists in at least thirty-eight states, and numbers perhaps 20,000 victims, with a mortality of 25 per cent. In some sections of the South, the disease has reached epidemic proportions, and has of late assumed an unwonted activity, and shows no sign of abating.

Consider the character of pellagra: its maniacal termination; its high mortality; its rapid increase in the past few years; the absolute lack of any knowledge of its cause; the lack of any suitable prophylaxis or treatment; and that, as Lavinder says: "The fact that such knowledge as we do possess, casts at least grave suspicion on a valuable food product."

These facts are sufficient to give one the impression that the malady has risen to the dignity of a national problem.

Our knowledge of the metabolism in the disease has been somewhat extended by the studies of Myers and Fine, who have made comprehensive examinations of the intake and output of a large number of pellagrins. Anacidity is a characteristic symptom, and is associated with an absence of pepsin, or the presence of a small amount of this enzyme. The indicanuria which is universally present is thus explained, since gastric insufficiency serves to account for this symptom. Meyers and Fine suggest that there may be an unusual bacterial condition present, but no proof of such has been advanced. Little progress will probably be made in the methods of treatment until its etiology is better understood.

There is more or less opposition to the theory that diseased corn causes pellagra, yet it is generally accepted that it is an endemic disease, the cause being attributed to the eating of corn, supposed to be infected with certain *hyphomycetes*. This idea was first advanced by Marzoni, in 1810, and Lombroso devoted twenty-five years of his life to further studies along this line. His conclusions were to the effect that the disease was an intoxication resulting from the life processes of certain molds, which in themselves were not harmful. Despite the careful investigations of Lombroso, Tizzoni, Cuboni, and Ceni in experimentation on the lower animals, the fact remains that it has never been proven that pellagra can be experimentally produced. More recent work of Lavinder and Anderson, in attempting to reproduce the disease in monkeys by direct inoculation of the blood of a pellagrin, is not conclusive. In 1905 Samboni advanced his theory that pellagra was a protozoal disease, and that it was transmitted by an intermediate host, which was thought to be the *simulium reptans*, or buffalo gnat. This view was strengthened by further investigation in Italy. Samboni claimed that, on a pathological basis, pellagra should not be classed with maladies due to poisoning by grain, such as ergotism; but, according to his views, the presence of round-cell perivascular infiltration and the increased mononuclear blood elements, placed it in the group of diseases of animal parasitical origin, with trypanosmiasis and kala-azar.

Driscoll believes pellagra to be due to the absence of a hormone or a chemical substance in the grain capsule; and the omission of this from the dietary of the corn-bread eater, by artificial means, is responsible. Some work in corrobora-

tion of his theory has been done on the lower animals.

The symptoms of pellagra are legion. There are marked digestive disturbances, and the appearance of the tongue is one of the sign-posts pointing to a correct diagnosis. Its color is a cardinal-red, and being denuded of its epithelium it is smooth and glistening. This redness may be observed as far as one can see in the pharynx. The mucosa of the lips also shows this characteristic color. There may be gastric crises and occasional hemorrhages. Other mucous membranes may be involved, as proctoscopic examination will show a bright-red mucosa as far up the gut as can be seen. The acme of the stomatitis corresponds in point of time and severity to the acme of the eruption on the hands.

Some time during the progress of the disease, diarrhea will be present, and occasionally mucus and blood will be observed in the stools.

The temperature and pulse vary. In malignant cases there are high temperatures and rapid pulse.

The nervous symptoms are marked, mental depression probably being most common.

The skin eruption is a constant feature, but may not make its appearance until late in the course of the disease, sometimes developing but a few days before death. It is an erythematous rash, and resembles sunburn. It occurs on parts exposed to the sun,—the dorsal surfaces of the hands, the forearms, the sides of the neck, etc.

Before giving the history of two cases which I have had under my care, there are a few points to emphasize: the onset is frequently insidious and atypical; the disease is a malady as protean as malarial fever, tuberculosis or hysteria. Final emphasis is placed on the point that its zone is constantly widening, and one should have in mind at all times the pellagra syndrome.

Case 1.—Mr. ——, a middle-aged man with a history extending over several years, probably about four. He had been under the treatment of numerous physicians, and had a history and a train of symptoms which had led his medical advisors to think he had a carcinoma involving the stomach. The patient's home was in North Dakota, and he first consulted me in April, 1913. He had the characteristic rash and the peculiar tongue and lips, and was much depressed, mentally. Three years ago, he weighed about 160 pounds; at time of the examination, his weight was 127 pounds. On physical examination the skin was dry and scaly, with a peculiar dark, greasy-looking rash on the extensor surfaces of the hands and forearms. The arteries were palpable, and there was a lateral pulsation in the brachials. The chest and abdomen showed nothing abnormal.

Examination of the blood showed red cells, 3,030,000; white cells, 7,200; hemoglobin, 50 per cent. The stained specimen showed achromia, slight poikilocytosis, many off-colored cells, and some nucleated red cells.

After a test-meal the stomach contents showed free hydrochloric acid. The gastric capacity was about thirty-six ounces. The stools were discolored and gave a well-marked reaction to guaiac.

Examination of the urine showed the presence of a few granular casts, and an indicanuria.

He had an afternoon temperature, varying from 101° to 103° F. I was unable to make a satisfactory diagnosis in this case, and referred the patient to the Mayo Clinic, where he was kept under observation for several days. Eventually, he was seen by Dr. Charles H. Mayo, who promptly made a diagnosis of pellagra. The patient continued to emaciate, the skin exfoliated over its entire surface, and on June 1st, he became comatose, and died on June 3d.

Case 2.—Mrs. ——, widow, aged 65 years. She first consulted me in the spring of 1912 for what I assumed at the time to be pernicious anemia, as the blood-picture was somewhat typical, and she had the peculiar yellowish, waxy cachectic look of this form of anemia. However, during the late summer and fall, she improved considerably. Again, in the spring of 1913, she began having gastric disturbance. Examination showed the patient much emaciated, and the skin dry and rough. The red cells numbered 3,120,000; the leucocytes, 6,800, the different varieties approximating the normal. Her blood-pressure was 150 mm. of mercury. The urine contained no albumin and no casts, but showed a well-marked indicanuria.

As the warm days of early summer came on, the patient was taken out on the porch in the sunshine, and in June she developed the typical erythematous rash, covering the extensor surfaces of both hands and forearms, and the right side of the neck. The tongue and buccal mucosa were typical, and depression well marked. A diagnosis of pellagra was made, and later confirmed by Drs. Sutton and Hoard, of Texas, who were in Rochester in attendance at the Mayo Clinic.

Drs. H. M. Bracken and A. J. Chesley, of the State Board of Health, saw the patient and also confirmed the diagnosis. They stated that this is the first case of pellagra originating in Minnesota.

PUBLIC-HEALTH EDUCATION*

By G. W. Parsons, M. D.

SIOUX FALLS, S. D.

In the Code of Ethics which we as a profession respect as containing the principles of right conduct which should govern the actions of physicians, we find the following reference to the "Duties of the Profession to the Public":

> Physicians, as good citizens and because their professional training specially qualifies them to render this service, should give advice concerning the public health of the community.

This important duty which we owe the public is one which requires no argument to convince any reputable physician as to its desirability or as to our moral obligation in connection therewith. However, it is an unfortunate fact that this particular duty of physicians, like numerous other duties of all classes of good citizens, has been sadly neglected. It is well known to all of us that the great cause of disease is ignorance, on the part of the public, of the fundamentals of hygiene, especially as far as the prevention of communicable disease is concerned. That thousands upon thousands die each year from diseases whose causes we know, and which might be prevented by the application of our present knowledge of sanitation, is nothing short of a blot on civilization. It is all too true that the public does not appreciate the efforts of the organized profession to protect them from disease, and that the ignorant regard our humane efforts as another phase of "graft," cunningly devised by "The Medical Trust." That we have any moral right, however, to sit still and silent while people suffer and die in consequence of their own ignorance, and its accompanying suspicion of our efforts at life-saving, does not in any wise follow. It must be admitted that there is a temptation to let those who will not be advised suffer, but no one with any semblance of humanity can endure the thought of the helpless and innocent suffering without making some effort at prevention and alleviation.

It is unnecessary to remind physicians of the enormous amount of preventable sickness and death which sap our vitality, lessen our efficiency, and impoverish our financial resources as a nation. We know full well that, in a great measure, all this could be stopped by efficient sanitary administration. The recent miracle of sanitary science in the Panama Canal Zone is ample proof of what can be done under even more favorable conditions. And yet, we all know that when we ask our legislators for adequate laws and appropriations to protect the lives of our own neighbors and the members of our own families, we receive little or no help. Why is it that our state is so niggardly in its support of the Department of Public Health? Why is it that none of our municipalities have an efficient health service? Simply because the people who pay the taxes and make the laws do not think it is worth while. And why do they not think it worth while? Simply because they are ignorant of the real conditions. The average man regards disease as a mysterious dispensation of Providence, a sentiment which he has inherited from countless generations of ancestors who trace their origin farther back than the primitive savage, who regarded disease as the malign work of demons. This fatalistic attitude of the public at large is the most important and most formidable foe to be overcome in the warfare against disease. It follows, then, that the strategic point of attack must be made upon the ignorance which breeds the indifference to sanitation.

This diagnosis of the state of the public health suggests at once the first and most important remedy, an eliminative treatment, if you please, which shall sweep out the ignorance which keeps up an auto-intoxication in the public organism and renders it so susceptible to disease. The name of the remedy is education.

Realizing the importance of educating the public along sanitary lines the American Medical Association has established its "Council on Health and Public Instruction." This Council represents the activities of the national organization of the profession along educational lines. It has organized a Speakers' Bureau from which are sent to different parts of the country speakers who deliver addresses on health topics. The Association has appropriated funds to meet the actual expenses of the speakers when appointments are filled outside the state in which they reside. In this way considerable is being done to enlighten the public. However, it is impossible with the limited number of speakers in the Bureau, with the time at their disposal, to

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

reach more than a few of the localities which need public instruction of this character. There has been organized to meet local needs the Committee on Public Health Education Among Women, which is represented in each state by a chairman who has supervision of the public health educational work for that state. It was planned to put this work so far as possible in the hands of women practitioners, as will be noted from the following resolution:

"*Whereas*, The work of the Public Health Education Committee is of great service to the community in lessening disease and stands for the work in which the American Medical Association is interested,

Resolved, That this Committee be made a standing committee of the Council on Health and Public Instruction to be known as the Committee for Public Health Education among Women, and that *either men or women* may be members thereof, and that this Committee shall have charge of the dissemination of information concerning the prevention of diseases, among Women's Clubs, Mothers' and Teachers' Organizations, Church and Social Settlement Groups, Young Women's Christion Associations, etc."

The council on Health and Public Instruction recommends that the state and county medical societies co-operate with the American Medical Association Committee for Public Health Education Among Women by making the state chairman of said committee a member of the State Public Health Committee and the county chairman a member of the County Public Health Committee in those state and county medical societies which already have standing public-health committees, and in such as have not the American Medical Association Council on Health and Public Instruction urgently requests that Public Health Education Committees be formed to co-operate with the American Medical Association Committee for Public Health Education Among Women.

This Committee of the American Medical Association has been doing excellent work in several states. Nearly every city of any size is maintaining a course of popular health-lectures given by the members of the local society, under the auspices of the American Medical Association Committee. This Committee is also co-operating with the National Educational Association and the American School Hygiene Association.

I have the honor to be the state chairman for this state, and have endeavored to get the local societies interested in the work, but not much progress has been made. The Seventh District Society has a Committee on Public Health Education and maintains a course of popular health-lectures given by the members of the society, under the auspices of the board of education, thereby supplementing the work of the medical inspection of schools. Locally, a few members of the profession in different places have been doing excellent work. What we need in this state is a definite organization of this work of educating the public along lines recommended by the American Medical Association Council.

My experience in this work, as a member of the American Medical Association Speakers' Bureau, outside the state, and as chairman of the state committee, in which capacity I have addressed several large gatherings, such as the State Educational Association, Conservation Congress, etc., leads me to believe that the more influential citizens are glad to have this work carried on, and their influence is most valuable in reaching the great masses of the people who need enlightenment the most. I would therefore urge upon this Association the need of appointing a State Committee on Public Health Education, and subordinate committees in each district society for the purpose of carrying on the work recommended by the American Medical Association Council.

To cover the expense of postage and correspondence, hitherto met by the chairman personally, there should be appropriated a small amount. Time will not permit the giving of details as to methods of getting health instruction before the public, but the following opportunities of getting a hearing have been found valuable:

The churches afford an excellent medium for the dissemination of sanitary information. Many of the progressive clergymen ask for a lecture on tuberculosis for "Tuberculosis Sunday." Stereopticon slides for illustrating such lectures may be rented for a small sum, and the information thus given is productive of much good, especially in offsetting the quack advertising that most of the laity have to rely upon for their knowledge of the subject.

Mothers' clubs in connection with schools are always glad to have talks relating to the health of the home and their children. Addresses given to teachers at institutes and association meetings are of great value, as the information they receive is spread through the children of the public schools.

In a like manner talks on school sanitation

before school officers' conventions can accomplish a great deal of good. Through the influence of mothers' clubs, teachers and school officers it will be possible to have introduced health supervision of schools, which really is the key to the sanitary situation in any civilized country. Addresses before student bodies at colleges and normals may be made to great advantage. Perhaps the most important opportunity at present for placing this sanitary information where it will do the most good is before the members of women's clubs. These women are usually the most progressive in their communities, and if properly interested they can be of great service in arranging for popular health-lectures before their own organizations and for the general public. Much of the work done by the Speakers' Bureau of the American Medical Association has been arranged in this way. Where it is possible school-buildings should be utilized as centers for instructing the public. Every village should have a series of popular health talks given in its high-school building. Every physician should feel it his duty to assist in this work of enlightening the public.

I urge this matter upon the State Association and upon each District Society as an important duty which we must not neglect. I hope to see appointed a committee which will so organize this work that all over the state the members of the profession will lend assistance in a "campaign of education," which shall be far-reaching in its results in the prevention of disease.

I am aware that there are some who are not in accord with this plan of giving out life-saving information to the public, and who may feel it somewhat beneath their dignity to be identified with the work. For the benefit of any such I would respectfully call their attention to some of the following physicians whose good name and professional standing do not seem to have suffered from their hearty support and cooperation with this movement of doing good:

Sternberg, Stiles and Wiley of Washington.

Hall, N. S. Davis, Murphy, Evans and Hektoen of Chicago.

Hurty of Indianapolis.

Ravenel of the University of Wisconsin.

Vaughan of the University of Michigan.

Dock and Loeb of St. Louis.

Beard, Bracken, Sedgwick, Todd, Ulrich, Wesbrook and White of Minneapolis.

Rodman, Schamberg and Montgomery of Philadelphia.

Egbert, Flexner, Jacobi, Morrow, Park, Starr and Stern of New York.

Councilman, Cabot, Harrington, Mumford and Richardson of Boston.

A fairly respectable company, who do not hesitate to do for their own fellow citizens what we physicians of South Dakota ought do for ours.

I can offer no better conclusion to this paper than to quote the words of President Eliot of Harvard, who, in writing concerning this particular work, states:

> I entirely agree with you regarding the work of the physicians who have been giving their time to enlighten laymen concerning preventive medicine, a genuine philanthropic and altruistic effort, for which the thanks of the entire community are due. Indeed, the medical profession seems to me the real missionary profession of today.

DISCUSSION

Dr. Mortimer Herzberg (Vermillion): I would like to say a word or two supplementing Dr. Parsons' paper. Such a movement has been started here in Vermillion; and as an example of what can be done in this city under the auspices of the Ladies' Civic League, they have had a number of addresses by Dr. Jones and others. Dr. Jones is particularly interested in sex hygiene and the sex-educational problem, and I understand he gave very interesting talks to large audiences. As I have said before this body in the Yankton District, I have conducted a sort of class in this work at the University. We started it as an experiment and had a small class. The second year I had not intended to start it, but there were a large number of students who requested it, and the course was given again; the third-year students requested a course, but the line of work in my department was so great I could not devote any time to it.

There is great need for it, and I believe there is a growing tendency or great desire for such a course. The students I have had an opportunity to speak to are interested, and they are going to require such a course, and eventually it will not be a voluntary course on the part of outside organizations. I think the work along this line will be introduced in the higher schools where children have reached the age they can understand these subjects.

There are a number of good books published on the subject, one particularly on sanitation and hygiene by Mr. Ritchie of St. Mary's College, written in a pleasing style, is well illustrated, and such a book forms an excellent basis for any man who wants to talk about this subject. I think it will eventually be used in the schools to cover a certain class of health education.

Dr. Thomas Cruickshank (Vermillion): I would like the author of the paper to explain how we should go about this business. I have been interested in this subject for a number of years, and two years ago, when Professor Lawrence was elected Superintendent of Public Instruction, I saw an opening. Professor Lawrence and I have been friends for twenty years, and so I wrote him and suggested that, throughout the state in the different counties where teachers' institutes were held, he call upon the local physicians and ask some of

them to give lectures, for instance, on tuberculosis or how to prevent it, and also to urge the teachers to give talks on these subjects to the children. Professor Lawrence took up the matter with the Board of Health, and I received one or two very encouraging letters from the superintendent. I thought I had started a great movement. I am sorry to say that they wasted their time and stamps in writing to me. If we would accomplish much in this direction we should begin with the children and not with the old hard-heads. Let us begin with the coming generation.

I was, to say the least, mortified that our Board of Health did not take more interest in this subject, not because I advocated it, but because I think it is a good thing for the public, and I would like Dr. Parsons to explain what measures he would adopt in educating the public in regard to this subject.

Dr. H. J. G. Koobs (Scotland): I am very glad Dr. Parsons has presented this subject to us. It is a very important one, and I feel that we as physicians ought to be philanthropic enough to be willing to inform ourselves on these topics and give lectures to the public in our community in which we live.

Dr. Edwin L. Perkins (Sioux Falls): As a member of the Board of Education of Sioux Falls, I would like to second and endorse some of the remarks and recommendations made by Dr. Parsons in his splendid paper. Through his suggestion primarily the Board of Education made it possible to inaugurate a series of lectures in the high school of our city. The auditorium was thrown open to the use of the general public, and physicians have been assigned to topics such as they felt most competent to speak upon. The work has been carried on for about one year, and we have had a number of lectures, some of them well attended, and some not, but the tendency is all toward a hearty endorsement of Dr. Parsons' plan, and we who are watching the work and its results can speak heartily in favor of it and give it our endorsement.

There is no question but what the mothers' organizations—and there is one in every ward in our city—are doing a wonderful work along this line. They have invited from time to time representative physicians to talk along public-health lines, and these meetings are always well attended by the teachers, as well as by parents and their friends. It is usually an experience-meeting, a heart-to-heart talk between teachers and laymen. These meetings are growing more and more enthusiastic as the years go by, and there is no question but what in our community there is a wholesome movement on foot for a greater uplift along this line of public-health education. The people are talking about it; the children are talking about it; they are eager for it; they want it. I think every member of the American Medical Association should put his shoulder to the wheel and do what he can to advance the work. We are getting results. I hope this association will adopt a course of definite action along this line. I know you will not regret it. Every community in South Dakota should be enthusiastic for public-health education. It means the uplift of the present generation that is being educated in our public schools. It means a more wholesome attitude towards educational matters in days to come.

Dr. L. N. Grosvenor (Huron): I had the pleasure about a month ago of being invited to talk to the Mothers' Union at Huron. I had been in the town only about six months and I was a little shy. I secured some wrapping paper from a drug store and made some water-colored sketches of the things I wanted to talk about in connection with the nose and throat. I illustrated my talk to a very large extent. I gave them some common-sense, practical ideas of the subject. I talked for an hour, and it took me more than an hour to answer all the questions that were asked.

A week ago yesterday I talked to the students of the high school in the assembly-room, showing them some pictures, which were made from microscopic slides and photomicrographs of diseases of the eye, ear, nose, and throat. They became very much interested in them. They seemed to enjoy my talk immensely, and I believe they profited by it. We cannot afford to pass up these opportunities, and we can in a quiet way make opportunities sometimes.

The mothers were delighted to hear about the things on which I spoke, and they were very anxious to learn more. They do not know what to do, and the finest thing I had to relate to these mothers was about two cases I had a few weeks before. One mother brought her little girl in with an acute suppuration of the middle-ear. She gave me a chance to take care of the condition right at the start and I cured it up in ten days. Another mother waited until her child had an infected mastoid before she sent for a doctor. I had to do a mastoid operation immediately. Here we had illustrated in a very striking way the difference between two mothers in taking care of these cases. To me it is a most forcible illustration of why it is important to take care of these little troubles early, and we all have seen instances in which, when these little patients have been brought to us early, treatment has been followed by a tremendous amount of good, both for the patients and for ourselves.

Dr. Mortimer Herzberg (Vermillion): I merely want to call attention to a letter I received about a week ago from a Mr. Beebe of Ipswich. I was under the impression he was one of the newer members of the State Board of Regents. Perhaps you heard from the gentleman, Mr. President, as it was concerning the program of this meeting. He claimed that there was not enough in the program concerning public health, and he spoke of being particularly interested in the restriction of marriages among the unfit. I referred the gentleman to the President and to the makers of the program. I knew the physicians were thoroughly equipped with knowledge on the subject, but it was more or less the province of teachers to arouse the public to a further interest in it.

I mention this, not knowing whether this gentleman is a new member of the Board of Regents or not. If he is, he will have some influence in the Board of Regents, and that is a sort of entering wedge in the educational facilities of the state.

Another member of the Board of Regents is extremely interested in this public health work, and looked upon it with a great deal of favor personally. They will do what they can to further any movement that can be pushed through.

Dr. C. E. McCauley (Aberdeen): I received a letter from W. K. Beebe, vice-president of the Bank of Ipswich. He wrote a similar letter to Dr. Edwards, who forwarded

it to Dr. Alway. In this letter he stated that the program was apparently barren in subjects of public interest, and that nothing was said about marriage laws, and then added one line that I did not like very well, namely, "the physician does not cease to be a citizen." I wish I had a copy of the letter I sent him. I wrote him to the effect that if he would look at the program, out of twelve papers, there were at least two papers, one by Dr. Parsons and one by Dr. Frink, an abstract of which I had seen, which covered the whole ground quite fully, and was a plea for the physicians to educate the people along these lines and to begin to do so early. I also told him that in my address as President, I would have something to say along the same lines. I sent him a copy of the President's address last year, by Dr. Smith, which you will all remember had a great deal to say about eugenics and the marriage laws; this Association voted to have 300 copies of the address printed, and when the Legislature began its session last winter a copy was laid on every man's desk. If legislators were one-tenth as much interested in the problems of the public good as physicians are we should have had laws of this kind long ago.

If this gentleman would look around the state he would see that physicians are working in the interest of public health.

Dr. R. D. Alway (Aberdeen): I am sure the House of Delegates would like to get suggestions along this line from this general body if they are to take any action. Dr. Parsons has requested that we take some action, and we would appreciate suggestions.

Dr. S. M. Hohf (Yankton): I am sorry I could not be here this morning when this subject was brought up. There is no question but what the public wants this information. All we need to get is experience along this line ourselves. Last year I talked to a graduating class and was told that I could select any subject. I was up in the air as to what to talk about. It was suggested that I should talk on sex hygiene. I was a little timid because I did not know exactly what would fit and what would not. At any rate, I got through nicely with my talks, but the surprising thing to me was the number of questions that were fired at me by the young men and young women on that topic. If you try these things, you will be surprised at the way the people want that little knowledge. It is pure, unadulterated ignorance on their part. They want to acquire this knowledge and it is up to the medical profession to give it.

(At the close of his remarks Dr. Hohf introduced the following resolutions, which were adopted.—The Editors.)

RESOLUTIONS.

Whereas, In matters pertaining to sex education "it is better to know things right than to know things wrong," and traditions of the past having imposed upon the instructors of youth the edict of silence concerning all knowledge of human reproduction, and—

Whereas, There can be no greater satire upon creative wisdom than to assume that a knowledge of the function of reproduction and perpetuation of the race is not fit to be taught to young people, be it—

Resolved, That the South Dakota State Medical Association endorse the movement for sex education already on foot in the state, and that we declare our belief that the schools should no longer delay in sharing the responsibility of giving a safe and decent sex education to the young, and be it further

Resolved, That the medical profession of the state pledge its co-operation with the educational profession in studying and working out the means of giving such education.

Dr. J. G. Parsons (closing the discussion): It is very gratifying to me that my paper has elicited so much discussion on this very interesting and important subject.

Concerning the influence of the Board of Regents, I wish to say that just a short time ago I had a conversation with Mr. Dwight, a member of the Board of Regents, who resides at Sioux Falls. He is much interested in the subject, and he requested me to write him formally as a member of the Board of Regents, setting forth the needs of public-health education and making such suggestions as the Board could put into operation to further the work. As Dr. Herzberg has said, there will be at least one member in favor of this movement, and on that score we need have no fear that we shall not have some co-operation. In regard to the methods of getting at these things, there is an old saying that "where there is a will, there is always a way." If any man wants the opportunity to educate the general public in matters of public health, he will have a chance to do so, and I can point out to him many, many opportunities for pouring what knowledge he may have into the ear of the public. My principal idea in this paper was to stir up a little enthusiasm and I feel satisfied with the results so far, and I hope he will keep on.

What we need first is a serious conception of what there is to do and what we ought to do. Any man who is standing on the bank of a river and sees a small boy in the water drowning does not stop, but he simply gets busy and pulls the kid out with anything at his disposal, even though he does so at the risk of his own life. While we are not dealing with cases of drowning, we can safely say that one-third of the cases of every communicable disease that causes death in this country can possibly be stopped if we get busy with the methods of public-health administration that we now have at our disposal; and that is not an exaggerated statement.

We know how to do it. We want to get busy and do it, and we have got to have public sentiment back of us to do it. The methods of getting at the public I suggested in my paper, and if we really want to do something, I would suggest one particular thing. Dr. Sherwood and a very live, active minister in his town who believes in doing things for his community, got together and did something of practical value along public-health lines. They have been educating their little community, although there is only one doctor in the town. There is not a town in this state where there is a doctor, where there is a church, where there is a school, in which you cannot put the two agencies together and educate the public. You will always find a W. C. T. U. organization. They are strong on organization. They are willing to give you the opportunity. And then we have the teachers' institutes and all those agencies, and if physicians will avail themselves of these opportunities and get busy and arrange for something of that kind, they will be able to educate the people very effectively.

I spoke to the State Teachers' Association at Mitchell last fall, and I had an audience of 800. It was one of the

most enthusiastic audiences I have ever addressed. They were interested. They asked for suggestions in taking hold of these things. Talk the matter over with your doctor, I said to them; get him interested and you can do business.

So, it seems to me, what we need to do is to have this state organization officially recognize the importance of this work and to appoint a state committee on public-health education. I would not make it too large, but make it a committee not to exceed five, probably three would be better, that will have general supervision of this public-health education work. That committee must have funds to do business with. Probably $25 or $30 would pay all postage and stationery necessary to carry on the correspondence with the different agencies which would be brought into co-operation with the committee. There should be a similar committee in each district society, and let the local society make suggestions and co-operate in getting speakers from the American Medical Association. The American Medical Association can furnish a number of eminent speakers. I am a member myself of the Speakers' Bureau of the American Medical Association. This Association has sent me to an adjoining state and has paid my expenses for lecturing. Whenever a physician is sent out of his state by the American Medical Association to lecture that association pays the bill. If you write the American Medical Association and request that they furnish you a speaker, they will try to arrange for a speaker that will come and serve the public at that time. In working up a public meeting of that kind, you get the assistance of the commercial club, the different womens' clubs, and the education interests of the town. When you decide on the place of meeting, undertake a good campaign of advertising through the columns of the newspapers. The newspapers are mighty glad to get this stuff. I never saw a newspaper that was not glad to get anything of that kind, where there was no particular graft on the part of any particular doctor. If it is in the interest of the public the newspaper men are glad to get it. It is necessary to push these things as vigorously as you can. Go to the public schools and arrange with the principal of the school and with the teachers to give a lecture on any particular subject you desire. Extend to them a personal invitation to be present. Say to them that you are going to give a public-health talk on such a subject and at such a time. Tell them that the parents of the students are likewise invited. These are suggestions.

Another thing is to get out tickets of admission and send them around. It takes a little money to do it, but not very much. Those are good things if the local society is alive, and that society can make plans and arrange for a course of lectures along these different lines in each of the towns. The same lectures can be delivered to different audiences. One can talk for half an hour on the same subject and do a vast amount of good. The good that may be accomplished in this way is tremendous, and you can create a public sentiment that will influence the people to talk about public-health legislation and make it possible to get what we need.

There is one criticism which has come up in connection with this movement, and that is, the public regard it as a sort of graft and an advertising scheme on the part of the physician. Supposing it is. I think all of our medical men in Sioux Falls who have given public-health addresses have been careful to have their addresses so worded that no one could even get the faintest suspicion that the speaker was trying to call attention to himself. One will do this if he simply talks in the interest of the public. An argument that is the most effectual one for scorching such an idea as that is this, that for years the doctor has been teaching the people how to keep well, that in so doing he is lessening his income, and it is a respectable kind of graft that the medical profession are interested in. We need not be afraid of that sort of criticism. There are some practitioners who are timid about talking along these lines for fear the public will look upon them in that way. But supposing they do. If we do not do something that is reliable and wholesome in the way of educating the public in regard to quacks and charlatans and imposters, those people will go to work and graft the public "proper" with all sorts of vile and crooked medical advertising while we keep still. It is the choice of two evils. It does not need any argument to convince us which one we ought to select. (Applause.)

LIFE INSURANCE EXAMINATIONS*

By F. W. MacManus, M. D.

WILLISTON, N. D.

Several years ago a fraternal life insurance agent called on me to make some examinations for him. On being asked the amount of the examination fee, he replied that he would pay one dollar and fifty cents each for those who were successful in passing the examination and a dollar each for those who failed. Recognizing a wish on the part of the agent for what amounted to no examination at all, I declined the honor of acting as his examiner, and he took his applicants to a neighboring town and had them examined. Instead of saying "examined," it would probably be nearer the truth to say that he had the blank spaces all filled satisfactorily with an applicant's name attached to each.

I asked one of them to make particular note of the amount of time spent in making his examination, and he reported that he was with the examiner just *nine* minutes. The entire party spent just six hours in the examiner's office and

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

had all returned in seven, an average for each of a fraction over ten minutes.

Following the subject further out of mere curiosity, I found that the examiner did not require a sample of urine from the female applicants at all, and only from a few of the men; also, that the applications with the medical examinations made complete were mailed that same evening, in less than an hour after the last applicant had left the doctor's office. Such rapidity of action certainly precluded any urinary analyses, although required in every application-blank. I afterward learned that the agent took the family histories while the doctor was filling out the remainder of the report.

I wish to state here and now that I have no quarrel with the doctor on account of his manner of making these examinations, because it was required of him by an unscrupulous agent; but, for the protection of those members of that society who were sound of body, such examinations should not be allowed to pass muster, and an agent who would ask his examiner to do such a thing ought to be eternally disqualified from holding any position pertaining to the credulity of honest people; and an examiner's conscience ought to hold him in the line of duty toward his employer and fellowman. I contend that such excuses for examinations are daily working an injustice to members of sound body, and a wrong to fraternal insurance generally. Is it any matter for very great wonder that certain fraternal insurance companies are having so much difficulty in so adjusting their rates as to satisfy the membership and keeping their policies in force?

In taking up the cudgel for better insurance examinations, I wish it to be thoroughly understood that I am not currying favor with any company nor with any individual; but, for the purpose of speaking on a rather neglected subject, I am giving some personal opinions as to the methods employed by some examiners in fulfilling the wishes, rather the demands, of the insurance companies, executed according to the wishes of some agents, and the carelessness of some examiners where time is the great desideratum.

We will admit that better examinations would result in better dividends for the stockholders of the insurance companies, but it would also result in better insurance for the policy-holders at less cost, if the companies would allow the policy-holders their just due, according to my understanding of fraternal insurance. This would more especially apply to all mutual companies, and even the old-line companies would, I believe, rather have a comparatively small membership composed of healthy individuals who would keep the premiums paid up on their policies, than a mass of heterogeneous risks, constantly lapsing or drawing on the mortality fund through failure to live out their expectancies, all due to the avarice of agents or lax methods on the part of the examiners, or a combination of the two. I do not believe that a good insurance company would count a lapse as a gain, but as a loss through unpaid premiums.

Occasionally an applicant will try to slip through the cordon of medical censorship by the knowledge he has gained through intercourse with other physicians and has learned which questions to answer with "yes" and which to answer with a "no." These cases or applicants are the ones who require the greatest amount of vigilance on the part of the examiner, especially when coming from another physician's territory, for they usually realize that they possess chronic conditions from which they can never recover and are seeking a financial guarantee against the inevitable. I have had applicants go to other physicians and have had them come from others to me, because they knew that their own physicians could not render a favorable report of them to the companies in which they were seeking insurance. Great care should be exercised by the examiner in such cases, in order not to do an injustice to the policy-holders, if a mutual company or even an old-line company, because the cost of failures is no doubt added to the cost of insurance, which necessarily raises it to those who are successful.

If the applicant should be a man in financial straits, the discovery of a weak spot in his physical condition places the examiner in a triangle, whose angles are composed of the desires of the applicant, the agent, and the company. Sympathy draws the examiner toward the applicant, a desire for more examinations toward the agent, a wish to increase the number of policy-holders toward the company, with an over-all desire to please all concerned, knowing at the same time that some one is going to be disappointed, no matter what sort of a report he may render. The agent, supposing him to be a dishonest fellow, which does happen occasionally among insurance agents—is asking you to make such a report that there shall be no question as to its acceptance by the company and the applicant is

asking practically the same thing, while the company is asking you to take such precautions in your examination as to make it a physical impossibility for an incompetent to pass the outer portal.

Now comes the question. Toward which side of the triangle should the examiner incline in reporting the findings of his examinations? To this question there can be but one answer in the mind of the right-thinking physician; and this answer is the truth in every case, so far as we are able to discover it, and that always places us on that side representing the company which employs us and pays us for our services. "What difference does it make?" asks the pessimist, "whether you pass him or not so long as the policyholder must pay the bill?" There is this difference; it would reduce the cost of insurance to the insurance companies, whether it would to the policyholder or not. That is another question to be settled by the insurance commissioners.

There are several splendid reasons why the examiner should throw his forces on the side of the insurer by rendering in every case the most thorough and exhaustive report he is capable of making; and, if we are not equipped educationally or instrumentally, if I may be allowed to use the latter term, we should become so at our earliest opportunity. Among these reasons are the following:

1. By exercising the most careful vigilance in making life insurance examinations, a physician is more likely to be more painstaking in making physical examinations in private practice.

2. The splendid, self-satisfied feeling of having responded to the call of duty toward one's employer.

3. By rendering an adverse report on an undesirable applicant, the conscientious examiner adds his mite toward raising the expectancy of the policyholders, thus reducing the cost of insurance; whereas, carelessness in making reports cannot but result in lowering of the expectancy with a consequent rise in the rate. Although there may be many others, these three are sufficient reasons to prove our contention.

As to the specific conditions which should render an applicant undesirable, I would give as my opinion that there are five or six which make hazardous risks, viz.:

1. Interstitial nephritis, with its concomitant or sequelary condition, because that pathological condition once seated in the kidneys ultimately finds its way into the general arterial system, producing cardiac hypertrophy, emphysema, chronic bronchitis, and untimely death.

2. Tuberculosis.

3. Excessive use of alcoholic stimulants and tobacco, especially cigarettes.

4. Syphilis.

5. Gonorrhea, for the reason that there is no way of knowing where it is going to stop. If the applying possessor be of a nervous temperament, and the disease finds its way into the seminal vesicles, the chances are he will end his days in the insane asylum or by self-destruction.

Tuberculosis and syphilis, not being very common to the rural districts of North Dakota, will not receive extensive consideration here except to ascertain that they are not present before recommending an applicant for insurance. The different and well-known methods of detecting and making an early diagnosis in tuberculosis (the late literature on the diagnosis of latent syphilis is so bountiful and explicit; the rubicund countenance and nasal acne of the alcoholic so patent; the anemia, wheezing, and nervous condition from dactyl tremor to positive tic of the cigarette fiend so frequently seen and recognised as such) are all too well known to call for discussion in this paper, so we shall pass to a consideration of the others: arteriosclerosis and interstitial nephritis. These two diseases are so intimately related, they cannot well be considered apart, because where one is present it sooner or later joins forces with the other. I wish to pay particular attention to these because I believe them to be much more common than usually considered and, when found, ought to exclude such risks, notwithstanding Dr. Barringer's report of 396 cases of albuminuria with a favorable prognosis for all below the third decade (*Jour. of the A. M. A.*, July 20, 1912). I take this exception for this reason; I have never seen a case of general arteriosclerosis in which a trace of albumin was not present and discoverable if patiently sought for, the mere presence of albumin in the urine constituting albuminuria. This being the case, what physician in this assemblage would guarantee *any* sclerotic a certain number of years? Knowing the uncertainty of the disease as to the time when a fatal valve-lesion may develop, such a proposition is untenable.

Presuming that all the other points in the physical examination have been covered, and you have arrived at that point where you are asked to pass judgment on the cardiovascular system

the first step is to secure two or three ounces of the applicant's urine. If the examination up to this point is not distinctly favorable, I insist on knowing that the urine presented for examination is that of the applicant. To this rule there should be no exceptions, even among the female applicants, as it can be arranged in a number of ways that will not leave you in doubt as it its autherticity and cause no embarrassment to either party.

A clinical card should be at hand for the purpose of jotting down the findings as made, the family history, and other data up to the urinary analysis, not relying entirely on the memory. The daily amount of urine is then noted, approximately, if not positively, the color, odor, reaction, specific gravity, and whether or not it contains shreds of mucus or other deposits. A dram or two is then boiled in a test-tube and the result noted and the remainder should be filtered and set aside to cool.

While the urine is cooling, it is usually my custom to make two copies of the pulse-tracing; one to be attached to the report, the other to be filed in my own cabinet, and to ascertain the blood-pressure which is also noted on the tracing. I am aware that the insurance companies do not demand a copy of the pulse-tracing, also that they did not demand the amount of blood-pressure five years ago when I first began the practice of sending it.

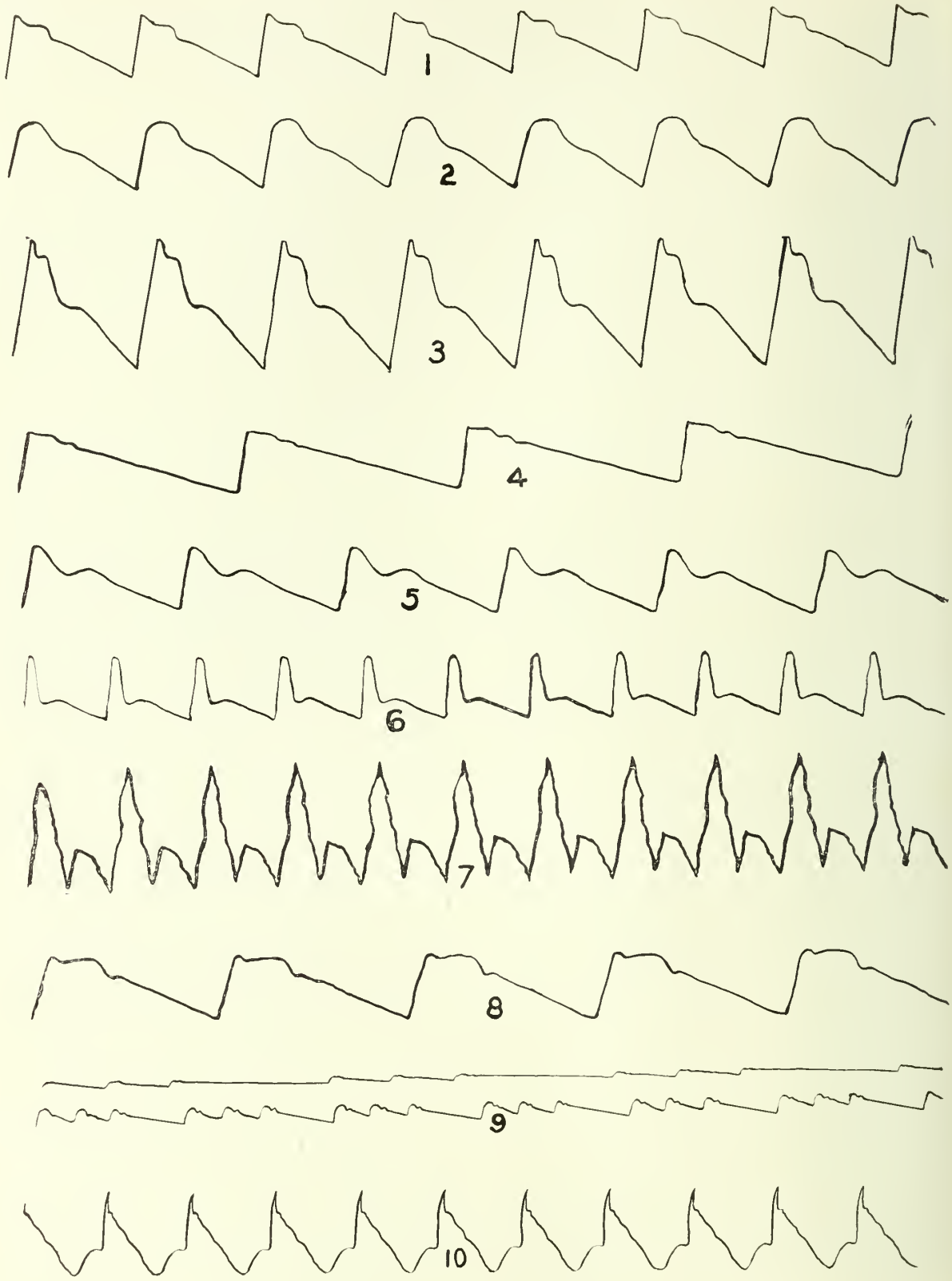
The ordinary gray filter-paper usually found in the drug-stores is not suited to precise urinary work because of its extreme porosity. Some of the suspended material will find its way through if there are any interstices throughout the thickness of the paper, which are easily discoverable by means of a low-power lens. The white paper, which may be obtained from any wholesale house, is of a very fine grade and will remove nearly, if not all, suspended matter which process is absolutely necessary in making a positive statement as to the presence or absence of albumin.

If the daily secretion be normal in amount, color, reaction, and specific gravity, the blood-pressure not more than 150 mm. hg., nor less than 120, the tracing showing a rather sharply defined apex and a wavering descent and the impulses regular, symmetrical and synchronous, you may very safely exclude any cardiovascular lesion; but you may find a blood-pressure of 160 or 170 mm. hg., and a specific gravity of 1030 or 1040, while the applicant may be entirely free from organic lesion, as is the case following severe exercise accompanied by excessive perspiration. This fact was vividly impressed on my mind not many days ago when an applicant presented himself whose urine showed a specific gravity of 1040 and was highly acid. It reduced copper to some extent, which justified our using the phenylhydrazine test. After an hour this test showed a beautiful array of sheaf-like crystals, which we pronounced glucosazone, but resolved to try the fermentation test for quantity, whereupon we did not get a single bubble of gas at the upper end of the saccharometer. By further testing we proved the crystals to be formed of tyrosin and sodium urate.

If the temperature be slightly below normal, the pulse rate low, the blood-pressure high and the daily secretion more or less above the normal with a correspondingly low specific gravity, you would be justified in reporting arteriosclerosis; and, if the urine should contain hyaline casts, even one in thirty or forty fields, you would know that the process is beginning in the kidney, granular casts indicating the establishment of the malady. Such a urine always contains albumin which should be diligently sought so that you may positively state such to be a fact.

I would not report adversely a case of simple arteriosclerosis minus granular casts if the applicant would submit to immediate treatment, because I believe that arteriosclerosis in the first and second degrees or stages is very similar to syphilis in regard to treatment and that it can be stopped in that stage in which the patient presents himself for treatment, very largely. Dr. Babcock of Chicago would not exclude mild cases of aortic stenosis or even mild valvular lesions, probably for the same reason, but the general course of the disease is so variable that I believe exclusion is perfectly justifiable. The words of Dr. C. B. Parker, "once a syphilitic, always a syphilitic," may be paraphrased into "once an arteriosclerotic, always an arteriosclerotic," but the process can be held in abeyance for variable periods under proper treatment and hygienic conditions.

For general and routine practice, I have found the cold nitric-acid test of Heller as well adapted as any if properly applied, but I would underlay the urine with the acid instead of overlaying the acid with the urine, for the reason that, as you will remember, you have to wait sometimes for twenty or thirty minutes to allow of a sufficient mixing of the urine and acid to disclose the zone, while, by underlaying the urine with the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acid, you at once secure the desired amount of mixing. As pointed out by Dr. H. W. Cook of the Northwestern National Life Insurance Company, introducing the acid beneath the urine through a pipette has the same objections as flowing the urine down upon the acid and should not be done where you wish to conserve time.

A flaring wine-glass answers the purpose much better than a test-tube, which has to be tilted in order to pour the acid in a thin stream down the inclined side. The sides of the wine glass being already tilted, the urine need not be disturbed while introducing the acid, and you obtain the desired amount of mixing at the same time

If the applicant has been taking copaiba, cubebs, or other balsamic mixtures, such as "oil of pine," "hamberger drops," sandalwood oil, etc., a white zone will form at the junction of urine and acid, but will extend downward into the acid, never upward into the urine. The precipitate thus formed is easily dissolved in alcohol. Another line composed of urates will form, but this is easily recognised by its reddish-brown color, also extending downward into the acid. If albumin be present, a line will form extending upward into the urine if there be more than a mere trace, appearing in all grades from a broad, positive band to a filmy line that will often cause you to question the accuracy of your vision.

Most observers advise viewing the reaction in a strong, oblique light against a black background and for a long time I followed the same procedure, but found that a strip of hard polished rubber passed through the line of contact answers the purpose fully as well, as the least trace of albumin may be seen to obscure the rubber's glossy blackness over that portion below the junction of urine and acid. Instead of viewing it in a strong oblique light, this can best be seen in a vertical light. You will find this expedient both accurate and reliable. Another method of detecting small amounts of albumin is the saturated salt solution containing one per centum acetic acid. This acid, you will remember, precipitates the nucleo-albumins, but not in the presence of sodium chloride. The salt solution may be kept in stock indefinitely, which is a great advantage. However, instead of adding the pure nitric acid after boiling, two or three drops of a ten per centum solution is much more delicate, as the reaction is not so precipitate.

Of all the tests that have been devised for the detection of sugar in the urine, I believe the phenylhydrazine test to be the most delicate and reliable. Every applicant's urine should be examined carefully for sugar, as it has been demonstrated in urines having only twelve grains of solids to a thousand cubic centimeters, and has not been found in urines having ninety-eight grains of solids per thousand cubic centimeters. Where found, the blood-pressure is nearly always high; but in cases where both the specific gravity of the urine and the blood-pressure are low, there is not much use of looking for it unless granular casts appear.

As an instrument of precision, the sphygmograph is in a class by itself. Tactile sensation may be ever so acute, but there are slight variations of the heart's action and arterial resistances which the finger cannot discover, or, if discovered, the sensation is gone so quickly that it cannot be interpreted, and its very existence becomes problematical. On the other hand, the sphygmograph furnishes an unvarying picture to be studied at the observer's leisure. The heart's action is no longer a subject for conjecture, but positive and reassuring to him who has learned to interpret the curves correctly. For instance, this enlarged scale-drawing was made from the record taken from the radial artery of a person in perfect health whose heart-action was normal in strength, regularity, symmetry, and synchronism. The record gives a picture of as perfect a heart-action as I have ever been able to obtain. Contrast this with the next one which was taken from a man who had general arteriosclerosis including a large degree of cardiac hypertrophy. Please note that the heart has responded to the first two-thirds of the initial impulse with the same readiness as the first, but from that on there is a very apparent slowing of the contraction and a vastly greater holding power; that while the first had a temperature of 98.4 degrees, a pulse-rate of 72, and a blood-pressure of 130 mm. hg., the second had a temperature of 99.4 degrees, a pulse-rate of 100, and a blood-pressure of 260 mm. hg. This temperature and pulse are not typical of arteriosclerosis, the difference being caused, most probably, by the absorption of putrid material from the lungs. His blood contained a greatly increased number of eosinophiles, which is taken as further proof that absorption was taking place.

Number 3 was taken from the same man two years later at the time when compensation was beginning to break through mitral insufficiency. Note the acute apices of the initial impulses and the beginning of autotoxemia, as evidenced by

the relative lowering of the arterial wave on the second leg of the triangle. This record was taken a few days before his death, which was preceded by three days of absolute coma.

Number 4 is the tracing of the pulse of a woman who came complaining of pain in the abdomen, headache in the occipital region, indistinct vision, dulled hearing, and lifeless expression. The feces were brownish but formed, urine very ammoniacal and dark, general aching, but no nosebleed. I made a mental diagnosis of typhoid, prescribed a cathartic, and ordered her to bed. In five days she sent for me. I found the temperature practically the same as before, but there was an increase of six heart-impulses, a beginning dicrotism, and she had had nosebleed. This enabled me to make the diagnosis positive, the disease running the usual course and terminating in recovery. The fifth chart shows the slight dicrotism which may be detected by some exquisitely sensitive finger, but which I could not feel even after knowing it was there.

Number 6 shows the condition of the pulse in a typhoid fifteen days after the beginning of the prodromals. It shows a weakened heart-muscle and a general low grade of vitality in a man who had been freely addicted to alcoholic stimulants. The softened condition of the heart-muscle being shown in the sudden relaxation at the apex of the initial impulse and the appearance of the arterial wave showing very low on the limb.

Number 7 shows the effect on the heart of a quart of wine, which the patient succeeded in purloining and drinking twelve hours before this sphygmogram was taken. This record should be especially noticed for its "jagged" appearance, which is not at all exaggerated, as may be verified by comparing with the attached original. The record at the right hand of the chart was taken after another debauch, this time of venison three or four days after the temperature reached normal the second time. As soon as the temperature had maintained a normal degree for three days the third time, he was sent to a hospital at Williston, where it was thought he would be under better control, but, some days later, a sympathizing friend furnished him half a dozen oranges, which he devoured, the rind with the rest, and promptly died.

Number 8 is the tracing of a woman's pulse whose temperature was 97.5 degrees, pulse-rate 47, and blood-pressure 170 mm. hg. Nitroglycerine lowered the pressure and potassium iodide, after two years of treatment, has maintained a blood-pressure of 140 mm. hg., and the precordial pains have entirely disappeared. She is now living with her chiropractic son-in-law who administers the "chiro," and she takes the iodide merely to amuse herself. From some source, she is deriving great benefit, living in comparative freedom from her old trouble, but, of course, "chiro" gets the glory.

Number 9 is the record of a man's pulse who was 66 years of age at the time, whose temperature was 97 degrees, pulse 27, and blood-pressure 232 mm. hg. You may see by the tracing that his heart-action was extremely slow and that it was missing the fourth and fifth beats regularly. Such a heart would very soon drop the third, and then the second considerably sooner than the third, and would then forget itself entirely in diastole, and the chamber of forgetfulness for his. The second tracing on the chart shows what twenty-four hours of rest and infusion of digitalis did for this heart, which is well worth the trouble of making them. The second shows an increase in strength, volume, and frequency, and has regained the fourth impulse, the total number of impulses being increased to fifty-one, a gain of 90 per cent, the blood-pressure remaining about the same, which will give you somewhat of an idea of the condition of his arteries. In one year the iodide of potassium decreased the blood-pressure to 180 mm. hg, where it must remain, as any further decrease causes dyspnea and cyanosis. We are using this point as an index for medication, stopping the iodide as soon as this pressure is reached. Three years have passed since these records were taken and he seems to be enjoying better health every day. Luckily for the iodide, this man has had no "chiro."

The last record was taken from a man who is slowly recovering from an acute and very severe rheumatic infection of the articulations. Cardiac pulsations were plainly visible at twenty feet, and the arterial movements could be counted, macroscopically, at the carotids, temporals, brachials, radials, and femorals. It is one of the very few cases I have seen where the "water hammer," "pistol shot," or Corrigan's pulse could be demonstrated. The sphygmograph fails to show any forward movement during the first two-fifths of diastole, which demonstrates a heart-muscle in extreme asthenia. Another peculiarity of this pulse is the hyperdicrotism, which shows so clearly below the base-line, which is always

reckoned from the beginning of systole. This condition indicates a high degree of auto-infection, and when a heart gets into this condition it is liable to dilate fatally any minute.

This paper is much longer than originally intended, and the only excuse I have to offer is a full and abiding faith in the utility and practicability of the sphygmomanometer and sphygmograph as instruments of precision in ascertaining the exact condition of the cardiovascular system in any given case. I do not consider it sufficient to say that the blood-pressure is plus or minus because it must always leave the Medical Chief in doubt as to the degree. It is not enough to say that the urine contains albumin or sugar unless we are able to state an approximate amount, and give the probable causes that lead up to it, or send unquestionable data or proofs to verify our statements.

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HOSPITAL INVESTIGATIONS

The City Hospital of Minneapolis is the latest victim of the investigator, and, like most inquiries of this sort, the investigation was prompted by personal and political pique and sensationalism. Such investigations remind one of the ignoramus who, in buying a horse, begins his inspection at the luxurious and accessible tail instead of studying the head and foundations of the animal.

A municipal hospital that makes an honest endeavor to care for the sick poor is always at a disadvantage, for it deals mainly with chronic diseases, acute squalor, and unappreciative subjects. The poor patients, who are frequently removed from unhygienic homes and dragged from the gutter and temporary lodging-places, are cared for as they never were before. The consequence is, that they demand more attention than it is possible to give them, and their slightest grievance is distorted and magnified until it becomes mountainous in their eyes. They find ready sympathizers among a certain class of people who are willing to help disturb the peace. Fortunately, the complainants are in the minority, but their howls can be heard at great distances. A larger proportion of the City Hospital patients appreciate and are grateful for the treatment they receive, and they cheerfully put up with minor inconveniences, realizing that the fundamentals are good.

This investigation seemingly hinges on accidental cases of infection among children. This led to other complaints from other malcontents, and from these cases the basis of the investigation began. No evidence has been brought out showing that the Superintendent, Dr. H. O. Collins, was in any way at fault.

As has been said before in these columns, it is easy enough to build a hospital ready for patients, but it is quite a different and a peculiarly difficult matter to maintain and conduct a hospital unless the authorities provide sufficient funds and nurses. Primarily, the fault lies with the Board of Tax Levy. These gentlemen have a certain amount of money to apportion, but the demands and requests are so multiplied that they are forced to cut down appropriations somewhere, and because they do not keenly appreciate the needs of funds for hospital maintenance or public-health work, these institutions are cut below the living needs, while other departments with a stronger backing are supplied with a surplus. It is posisble for the Board of Tax Levy to curtail expenses elsewhere, and some city improvements could wait until the hospital and health boards were amply provided for. The City Hospital is run on too close a margin for the care of some of its patients, and the day will come when the authorities will see that health, though expensive, is a paying proposition.

It has been said that this investigation will cost the city about $20,000 in the payment of salaries of graduate nurses, as the entire entering class of applicants for the training-school have cancelled their applications on account of this investigation. The hospitals all over the country have found it difficult to get student nurses, and it is very unfortunate that such a serious condition should arise to handicap the City Hospital at this time.

Aside from the financial strain that the Hospital must meet, the disgrace to the city is one that should be promptly met by a demand for adequate funds to carry on the work of the City Hospital.

The City of Toronto has just completed a three-million dollar hospital for the treatment of the city's poor. Evidently Canada realizes much better than we do what is needed. That an investigation of this kind has become so public and sensational is beyond the comprehension of medical men. Why could it not have been handled

with thoroughness by the Board of Correction and Charities, who are familiar with the situation, thus avoiding needless publicity by the press? The people have domestic disturbances enough without participating in what will be a useless expense, a confusion of what is accidental with what is right or wrong.

Dr. Collins will be able to clarify the situation when his testimony gets before the committee, and the people are urged to withhold judgment until the facts, rather than the complaints, are known. Good may yet come from the inquiry if it shall prompt the Board of Tax Levy to provide more funds.

THE SIGNIFICANCE OF ANKLE CLONUS

Wilder Tileston, in the July number of the *American Journal of Medical Sciences,* discusses the presence of ankle clonus in which no organic disease of the nervous system exists. For a long time ankle clonus has been regarded as a certain sign of organic disease of the central nervous system. If clonus is to be regarded as a diagnostic sign of organic disease, it must be true in type and associated with other equally distinguishing symptoms.

In summing up his conclusions, he clears away errors that have long held sway. He says:

1. Ankle clonus, indistinguishable from the genuine, may be found more or less frequently in a variety of conditions without accompanying organic nervous disease.

2. These conditions are (a) acute infectious diseases, especially typhoid fever; (b) chronic infections associated with marked toxemia, especially advanced pulmonary tuberculosis; (c) uremia, before and during the acute seizure; (d) epilepsy, immediately after the convulsion; (e) intoxication from certain drugs, e. g., hyoscin, ether, and chloroform; (f) excessive fatigue; (g) exceptional instances of certain neuroses, viz., neurasthenia, hysteria, paralysis agitans; (h) psychoses in the stage of excitement; (i) chronic articular rheumatism.

3. With the exception of joint disease, a toxic action on the nervous system may be assumed in all these states as the underlying factor in the production of clonus.

4. In the case of articular rheumatism a constant special irritation from the inflamed joint tissues is the probable cause.

5. In two autopsies on cases of phthisis with clonus no change was found in the central nervous system. In the author's case, however, inflammatory exudate was demonstrated about the posterior septum of the bulb.

6. Clonus due to toxic states may usually be distinguished from that of organic nervous disease by the absence of spasticity and other signs pointing to such disease, and particularly by the absence of Babinski and Oppenheim toe signs.

7. An exception to this rule is encountered upon the use of hyoscin in medicinal doses and immediately after the epileptic attack, in both of which instances the Babinski and Oppenheim signs may be positive.

8. The occurrence of ankle clonus is of prognostic value in uremia, preceding at times the acute seizure. It usually disappears a few days before death; otherwise, its disappearance generally indicates an improvement in the patient's condition.

The author states that in the infectious diseases the appearance of ankle clonus certainly adds to the gravity of the prognosis, for it indicates a high degree of toxicity, although not precluding the possibility of recovery.

This exposition of ankle clonus may be applied with equal force in deciding the degree of disorder or disturbance of the nervous system in which personal injury cases are under investigation. Many of these cases present a number of symptoms, and it must be remembered that the neurotic and neurasthenic individual who is a litigant may have a clonus without actual injury or disease of the brain or spinal cord. It is one of the symptoms which are often made much of, but its real value is of a negative quality.

All of the reflexes must be considered in the same light, and not too much reliance placed upon them unless other and more definite symptoms are present.

MISCELLANY

A COMPLIMENTARY NOTICE FOR THE COMMITTEE OF WOMEN OF THE A. M. A.

In order that various members of the committee that entertained the ladies of the A. M. A. may see what the sentiment is in regard to the entertainment of the A. M. A., the following letters are printed as received, and it is hoped that the medical men will show these notices to the members of the committee.

FROM MRS. HIRAM WOODS OF BALTIMORE

My dear Mrs. Jones: So great is my own appreciation of the kindness received last week from the ladies of Minneapolis that I was only too glad to be appointed spokesman for the four ladies whose names I shall

mention, Mrs. Wilder of Chicago, Mrs. Thomson of New York, Mrs. Greenwood of Boston and Mrs. Will Walter of Chicago. Your bountiful hospitality is a thing to be long remembered, but, best of all, we were made to feel that the heartiness of our welcome was unfeigned. Please believe that the heartiness of our thanks is equally so.

It is our earnest hope that should it ever fall to our lot to assist in the entertaining of the ladies of the A. M. A., we may profit by the example you have given us of efficiency, graciousness, and generosity. If you will convey this acknowledgment to the ladies of your committee, we shall be grateful to you.

Cordially yours,

LAURA HALL WOODS.

FROM DR. FRANK C. TODD

Mrs. W. A. Jones,
307 Ridgewood Ave.,
City.

Dear Mrs. Jones: I wish to thank you for your services as chairman and, through you, your committee, and to express my appreciation for the excellent manner in which your committee entertained the ladies at the convention. I feel sure that they were never taken care of at any other convention as well as at this one.

I am enclosing a copy of a letter from Dr. Simmons, editor of the *Journal of the American Medical Association*. Such a statement from Dr. Simmons should be looked upon as the highest compliment, as he is far from a flatterer, and means this most sincerely.

FRANK C. TODD.

Dr. Simmons' letter was published in our issue of August 1st.—THE EDITORS.

CORRESPONDENCE

MUSCLE-SUTURES

TO THE EDITOR:

In a recent article by Dr. Maxeiner in THE JOURNAL-LANCET (July 1) on the matter of cutting the rectus muscle transversely, he states that muscle-suture is seemingly unnecessary if the aponeurosis is brought together.

I wish to state that attention was called to this point a long time ago by Dr. E. Boeckmann, of St. Paul, and he makes use of no muscle-suture. Dr. S. Hesselgrave, of St. Paul, has done many such sections without muscle-suture, and I have also done some. If good aponeurotic union is made, muscle-suture is never needed.

In papers by Dr. Hesselgrave and myself in the *St. Paul Medical Journal* for December, 1910, and December, 1911, respectively, on the subject of the closure of these wounds, no suture of muscle is mentioned. In my article it was distinctly stated that for these wounds formalized pyoktanin catgut was used as follows: No. 0 for peritoneum; No. 1 for three interrupted sutures (one at the median line and one on either side of the outer border of the rectus); No. 1 for aponeurotic suture; No. 000 for subcuticular, with zinc oxide plaster for surface apposition. Dr. Hesselgrave in his article says practically the same.

The overlapping of the aponeurosis mentioned by Dr. Maxeiner is an excellent point.

I am not writing this note by way of criticism, but as a help towards a proper estimate of the value of cross-sections of the abdomen and muscle-section when called for.

CHARLES F. DENNY, M. D.

St. Paul, August 22, 1913.

MAY MINNESOTA PHYSICIANS EXTRACT TEETH?

TO THE EDITOR:

What is the law in regard to physicians extracting teeth when no dentist is handy and a patient comes to a doctor's office with an aching tooth, or in a case where a man has a broken jaw and it is necessary to extract some of the teeth? In cases of this kind can a physician be held liable for practicing dentistry without a license?

H. W. FROELICH, M. D.

Crosby, Minn., August 11, 1913.

ANSWER BY DR. F. E. COBB, D. D. S.

President of the Minnesota State Board of Medical Examiners

TO THE EDITOR:

Regarding Dr. H. W. Froelich's inquiry relative to the extraction of teeth by the physician in the "absence of a dentist" for the relief of pain or in case of a fractured jaw where extraction of teeth is indicated or seems advisable, I will state that, while the law does not give the physician the privilege of extracting teeth for the purpose of relieving pain, the State Board of Dental Examiners have always held that such operations were permissible. Dr. E. A. Taylor, a physician of this city, went further than this and inserted an artificial denture. His plea was that the operation came under the practice of surgery. The Supreme Court of this state thought, however, as we did, as per the following decision:

State of Minnesota, Respondent,
vs.
Ernest R. Taylor, Appellant.

SYLLABUS

"A person who is licensed to practice medicine and surgery under the statutes of the State can-

not by virtue thereof practice dentistry without securing a license as a dentist as required by Ch. 117 G. L., 1907.

"Order affirmed. No. 15,887, Supreme Court, October Term, 1908. No. 42.—Elliott, J."

Minneapolis, August 14, 1913.

VITAL STATISTICS IN NORTH DAKOTA

To the Editor:

In the year 1907 the North Dakota legislature passed a bill making the model vital statistics bill of the United States Bureau of Vital Statistics a law. The bill was passed without a dissenting vote in the legislature and became a law when signed by the governor.

This law has been in effect ever since, but has not been enforced by the State Board of Health. Minnesota and Montana have the same law, but the authorities in both states enforce it.

The following table, compiled from the reports of the state health officers in the three states, will show the difference in death-rates in states where such a vitally important law is enforced and where it is neglected:

DEATH-RATE

Of six principal cities in Minnesota, Montana, and North Dakota in 1912, according to population (U. S. census, 1910):

Minnesota.	
City.	Rate.
Minneapolis	11.5
St. Paul	10.5
Duluth	11.2
Virginia	10.7
St. Cloud	9.8
Winona	12.8
Average	11.1

Montana.	
City.	Rate.
Great Falls	14.9
Anaconda	11.8
Helena	14.8
Missoula	13.8

Montana—Continued.	
City.	Rate.
Butte	15.6
Billings	10.3
Average	13.5

North Dakota.	
City.	Rate.
Bismarck	17.9
Fargo	16.2
Grand Forks	14.0
Jamestown	24.7
Mandan	8.0
Valley City	14.5
Average	15.8

As the North Dakota statistics are collected voluntarily by the local registrars and city auditors, and as the state registrar apparently accepts any returns sent in, these statistics are not reliable and can be considered only comparatively. For instance, in the case of the city of Bismarck, enough still-births and deaths that occurred in the country, outside of the city, were included in the city deaths to add 2.0 per thousand to the rate for 1912. This probably happened in other cities, but, notwithstanding allowance for such errors, the death-rates in most of the cities is much higher than in those of the adjoining states.

The variation of the death-rate in the Dakota cities ought to have called for some action by the State Board of Health, but, so far as the writer knows, even no inquiry has been made as to why the death-rates should range from 8.0 to 24.7 per thousand in cities of approximately the same population.

In Minnesota and Montana the number of deaths of infants under 1 year is 19 and 18, respectively, to every 100 deaths at all ages. In North Dakota 27.3 per cent of all deaths are of infants under 1 year.

That this extraordinary infantile mortality in North Dakota is unnecessary has been shown in the case of Bismarck, where in the past two years infantile mortality has been reduced over 40 per cent, and now the percentage of deaths of infants under 1 year is only 10.3 of all deaths.

The nullification of the vital statistics law by the State Board of Health, which has hitherto been passive, has now assumed an active form, and, according to the press reports, the Board, at its last meeting, agreed to abandon the vital statistics bureau.

How it is going to abandon something that never existed the Board did not explain.

Public health conditions, as they exist in this state, reflect, not only on the state, but on the whole Northwest, and tend to bring the medical profession generally into disrepute.

F. R. Smyth, M. D.,
City Health Officer, Bismarck, N. D.

August 20, 1913.

BOOK NOTICES

Tuberculin in Diagnosis and Treatment. By Francis Marion Pottinger, A. M., M. D., LL. D., Medical Director of the Pottinger Sanitarium for Diseases of the Lungs and Throat, Monrovia, California, pp. 215, with 35 illustrations. St. Louis: C. V. Mosby Co., 1913. Price, $2.50.

The author produces from a rich experience of several years an attractively written and complete treatise on tuberculin. He is an enthusiast in the employment of this treatment, and he presents, not only from his own experience, but from that of many other observers, evidence which must command the interest and respect of the doubter, if it does not quite convince him.

To one interested in phthisiology, who has not at hand Koch's original papers, the appendix containing translations of them is especially valuable. —Marcley.

An Introduction to the Study of Infection and Immunity. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. Octavo, 301 pages; illustrated; cloth, $3.25, net. Lea & Febiger, Philadelphia, 1912.

Dr. Simon has indeed filled a decided want for the general practitioner in bringing together in a concise,

accurate, and forcible way the new ideas swaying our knowledge of serum therapy, vaccine therapy, chemotherapy, and serum diagnosis. To the average man the facts related to serum diagnosis, the application of vaccines and sera in healing the sick, the various phenomena attending such therapy, and the facts and theories of anaphylaxis are decidedly hazy, or, rather, unknown. In this book anyone who cares really to get a systematic view of this newer branch of medicine can really do so with pleasure and a feeling of adequacy. The chapter on anaphylaxis is particularly commendable.

—Ulrich.

Accessory Sinuses of the Nose. By Ross Hall Skillern, pp. 389. J. B. Lippincott Co., Philadelphia, 1913.

The subject of nasal suppurations has not yet been treated in detail by any author, says Grunwald of Munich in his preface to "A Treatise on Nasal Suppuration," published in 1900. From about that time until the present year has developed most rapidly that acre in the field of medicine.

It presents one of its most magnificent blossoms in the form of a book by Ross Skillern, who says, "To set forth in the English language a thorough and exclusive treatment of this subject has been the inspiration of this work."

To review the book is a delight; to own it, every rhinologist's and surgeon's privilege.

We are indebted to the author for giving us a thorough presentation of the subject in the best possible manner. The following are the main headings: "General Considerations," ninety-eight pages; "Maxillary Sinus," eighty-nine pages; "Frontal Sinus," one hundred pages; "Ethmoid Labyrinth," fifty-four pages; "Sphenoid Sinus," forty-one pages. There are two hundred forty-seven illustrations and six colored plates.

It is one of the few books whose price is five dollars, and whose value is priceless. —Campbell.

Golden Rules of Diagnosis and Treatment of Diseases. By Henry A. Cables, B. S., M. D.; second edition; cloth. Price, $2.25; pp. 318. St. Louis: C. V. Masby Company, 1913.

This little book, up to date in every respect, is exceptionally complete for a book covering so large a field. The author has the faculty of bringing to the foreground only the salient points in diagnosis and discussing them in such a way that details are quickly recalled.

Therapeutics is, relatively, considered more in detail, and, although there is some tendency to polypharmacy, many of the prescriptions are valuable and the drugs well chosen.

The book cannot take the place of longer treatises of medicine, but as a busy general practitioner's "reminder," it can be highly recommended.

—Gardner.

Differential Diagnosis: Presented Through an Analysis of 385 Cases. By Dr. Richard C. Cabot, M. D., Assistant Professor of Clinical Medicine, Harvard University Medical School. Second Edition, revised; octavo of 764 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1912. Cloth, $5.50, net.

In bringing a book of such scope before the medical profession, Dr. Cabot has performed a mission which is greatly appreciated by all.

Dr. Cabot's method of taking up the general subjects, such as pain, headache, lumbar pain, general abdominal pain, etc., and discussing the various diseases which produce these symptoms, in such a graphic manner, makes it a pleasure to read the book.

Under these various headings he cites cases which are taken chiefly from the wards of the Massachusetts General Hospital. Careful histories and complete physical and laboratory findings are made of all these cases. This is then followed by a general discussion of what diseased conditions these findings point to, and then these diseases are ruled out one by one until the diagnosis is made. He goes still further and states the conclusions which lead him to make the final diagnosis.

Many of the cases have come to post-mortem where the final diagnosis is proved or disproved. In those cases where the original diagnosis has been shown to be incorrect by post-mortem, Dr. Cabot readily admits the mistakes, and then demonstrates why he was misled.

This work should be read from cover to cover, as the many points that are brought out in the 383 cases as presented contain a vast amount of material that will assist the physician in dealing with the various diseases which he meets daily.

It is true we will not coincide with Dr. Cabot in all the diagnoses which he has made in many cases, but it is this difference of opinion in studying the cases which makes the work so instructive. —Moren.

Organic and Functional Nervous Diseases. A Text-Book of Neurology. By M. Allen Starr, M. D., Ph. D., LL. D., Sc. D., Professor of Neurology, College of Physicians and Surgeons, New York. Fourth edition, enlarged and thoroughly revised. Octavo, 970 pages, with 323 engravings and 30 plates in colors or monochrome; cloth, $6.00, net; Lea & Febiger, Philadelphia and New York, 1913.

Since the appearance of its first edition, Starr's book has easily maintained its place in the first rank of American text-books dealing with organic nervous diseases. The present revision has been thorough, and many new things have been added. For example, the chapter on poliomyelitis has been re-written, bringing the information on this subject quite up to date. The chapter on examination of the patient is short, and it is probably expected that this important subject will be dealt with in a volume especially devoted to it.

As in former editions, the diagnosis and localization of spinal cord lesions and of brain lesions is given at length and forms one of the most important and satisfactory chapters of the book. In lesions of the lenticular nuclei, no mention is made of the recent work of Wilson, but the thalamic syndrome is considered fairly fully.

The portion devoted to the functional diseases in the present edition has been largely re-written and almost doubled in size, and, in all respects, is a great improvement over the corresponding part of the preceding edition, but even then it can hardly be said to be up to the level of the remainder of the book.

—Hamilton.

Collected Papers. By the Staff of St. Mary's Hospital, Mayo Clinic, 1911. Philadelphia: W. B. Saunders Co.

The papers from the Mayo Clinic are now so well known that it is almost unnecessary to make any extended comment upon them. The present volume under review, that of 1911, is a beautifully-printed and well-

illustrated book of some six hundred pages. It comprises the papers written by twenty-five members of the staff during the year 1911, all of which are of high grade, and they help materially to bring the subject of surgery and surgical pathology up to date.

As might be supposed, W. J. Mayo and C. H. Mayo are in the lead in the number of papers included in this volume. Dr. L. B. Wilson has some valuable contributions on "Mixed Tumors" of the salivary glands and the surgical pathology of the prostate. To mention the other contributions of merit in the volume would necessitate a detailed comment on nearly the whole list of papers. —MANN.

NEWS ITEMS

Dr. W. N. Theissen has moved from Minneapolis to Faribault.

Dr. J. G. Lamont has moved from Cando, N. D., to Dunseith, N. D.

Dr. J. H. Garand has moved from Dayton, Minn., to Oakdale, N. D.

Dr. G. S. Williams, of Volga, S. D., has located in Van Tassel, Wyoming.

Dr. J. H. Trimbo has moved from Forman N. D., to Menahga, Minn.

The partnership of Drs. Johnson and Fjelstad, of Red Wing, has been dissolved.

Dr. W. F. Finley, a recent graduate of the State University, has located at Lonsdale.

Dr. Clinton C. Miller, a pioneer physician of St. Paul, died August 12th at the age of 57.

Bishop Busch has announced that the Catholics will build a $50,000 hospital at Rapid City, S. D.

Dr. W. H. Lincoln, who has practiced for some years at Wabasha, has moved to Mondovi, Wis.

Dr. J. P. Schneider, of Green Isle, has moved to Minneapolis and has offices at 1916 2½ Street South.

Dr. A. Einar Johnson, of Madison, is home from Chicago, where he has been doing post-graduate work.

Dr. Orlando Ilstrup, of Cokato, died last month. Dr. Ilstrup was a graduate of the State University, class of '99.

The third annual congress of the Canadian Health Association will be held at Regina on the 18th, 19th and 20th inst.

Dr. Peter H. Muus, of Albert Lea, died last month at the age of 39. Dr. Muus was a graduate of Hamline, class of '04.

Dr. E. E. Barrett, of Glencoe, is enlarging his hospital, and he thinks it will be large enough to meet all the demands of that city.

The City of Chisholm will build a detention hospital this fall to cost about $10,000. The plans of the building have been completed.

Dr. Paul W. Wippermann, a 1913 graduate of the State University, has entered into partnership with Dr. Tolbert Watson, of Albany.

Dr. W. J. Mayo, of the Mayo Clinic, was entertained on his recent visit to London, by Sir W. Arbuthnot Lane, the eminent English surgeon.

The Eitel Hospital, of Minneapolis, has purchased a commodious "duplex," recently constructed, which will be used for a home for the nurses of the hospital.

Work has been begun on the superstructure of the new hospital building for the Lutherans at Watertown, S. D. The building will be four stories high and will cost $65,000.

Dr. Adolph Stierle, Sr., the well-known druggist of St. Paul, died last month at the age of 80. Dr. Stierle conducted a drug-store at Seventh Street and Broadway for forty years.

The Union Hospital Association of New Ulm has instructed architects Alban & Hausler, of St. Paul, to prepare plans for a hospital building, which the Association will erect this fall.

The Crow River Valley Society held its annual picnic and open-air meeting at Green Lake last month. Some papers were read, but the outing was the thing, and it was a good one.

Dr. Harry R. Nordley, who graduated last year from the State University and spent a year as house physician in the University Hospital, has formed a partnership with Dr. John C. Koch, at Blackduck.

Dr. O. H. Wolner, formerly resident physician for nine years at the Minnesota State Reformatory, has sold his practice at Hanover, and will take an extended course of post-graduate work with a view to confining his work to surgery.

The constitutionality of the South Dakota law requiring physicians to report vital statistics is to be tested. The law was passed in 1905, and imposes a penalty of $100 for failure to report a death. A faith-healer will have to make the defense.

The Wabasha County Medical Society held its forty-fifth annual meeting at Wabasha on July 10th. Papers were read by Dr. A. A. Rankin, Zumbro Falls; Dr. L. C. Ingram, Red

Wing; Dr. W. T. Adams, Elgin; Dr. E. H. Bailey, Lake City. A complimentary banquet was served after the meeting,—the hosts being Drs. Shaughnessy, Fleischauer, and Dempsey.

The staff changes, as regards plan, in the Minneapolis City Hospital and probably in the City and County Hospital of St. Paul has special interest to physicians outside of the Twin Cities. After October 1st the staff of the Minneapolis City Hospital will be composed of two equal departments, A and B. The head of Department A will be a University Medical School man, and the head of Department B will be a Minneapolis medical man, each appointed for one year. There will also be subdivisions of medicine, surgery, and obstetrics, with heads appointed in the same manner. Assistants in each subdivision will be appointed for terms of six months. Each department will receive one-half of all the patients entering the hospital. Department B will organize a summer and a winter course of clinics in order to furnish post-graduate work for medical men throughout the Northwest. The clinical material will be especially selected to meet the need of the general practitioner outside of the large city.

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In eastern North Dakota, unopposed $3,500 practice. Can be increased by doing surgery. In town of 500; good crops, and collections 95 per cent. Fine schools, churches, and lodges. Can give possession at once. Address A. T., care of this office.

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Town of 500, railroad division point, with railroad appointment, and some contract work. No competition. Beautiful home, two lots, garage, office in home. All for $2,000; a small payment down, balance in monthly payments. Address R. O., care of this office.

PHYSICIAN WANTED

A general practitioner to look after my practice for one or two months in good country town of North Dakota. Must be ready to begin between Sept. 5 and Sept. 15. Will pay straight salary if wanted. State salary wanted. Address B. M. D., care of this office.

ASSISTANT WANTED

An up-to-date assistant, German-speaking, one who can handle some eye-work. Salary, first year; partnership later, if desired. Address B. F., care of this office.

FINE OPENING FOR PHYSICIAN

A physician in town of 7,000 in Northern Minnesota who wishes to spend six or eight months in the East will rent his furnished office and equipment for that length of time beginning about Sept. 15. Practice is a general one and amounts to $6,000 a year, nearly entirely office and hospital work. May consider partnership later. Scandinavian preferred. Address J. M., care of this office.

PRACTICE FOR SALE

A $4,500 practice (which can be increased by doing some surgery) for sale, in eastern North Dakota. Population, 450. Nearly all Scandinavians; large territory in finest farming community; collections, 95 per cent. $2,500, part cash, buys valuable property and good-will. An excellent opportunity for a Norwegian-speaking physician. Address G. A., care of this office.

PRACTICE FOR SALE

A $5,000 practice in southern Minnesota; railroad town of 700; with electric lights, city water, churches, high school, four mails daily, and good roads. Collections, 95 per cent. No real estate; moving to city. Address L. M., care of this office.

OFFICE FOR RENT

Office for dentist or doctor in the Masonic Temple, Minneapolis, with reception-room in common with two physicians. Address or call at 504 Masonic Temple, Minneapolis.

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In southern Minnesota. A $3,400 practice for invoice of drugs and office equipment, about $600. Town of 1,000; thickly-settled country; good roads, and thrifty people. Thorough introduction. Answer soon. Address D. K., care of this office.

UNUSUAL OPPORTUNITY IN MINNEAPOLIS

A live practice for sale by a doctor who gives it up to accept an appointment at the University of Minnesota. A practice of about $4,000 a year in a good residence district. A practice that can be taken over and held together by a competent man.

I will accept $400 cash and the balance, $100, as soon as buyer is satisfied with agreement. Address P. M., care of this office.

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A good opportunity to secure a fine practice which runs from $6,000 to $7,000 a year. Located in southwestern Minnesota in one of best and liveliest towns of 800 people in the state. Good territory, good roads, good pay. Practice established for 20 years. Will sell the office building, which is large enough for a hospital. Electric lights and water and sewer connections. Wish to go to the city. Address C. M., care of this office.

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PUBLISHER'S DEPARTMENT

SHERMAN'S BACTERINS

Dr. Sherman makes a new announcement on another page which will be of interest to our readers as showing what the modern laboratory is doing to place the products of its research in the hands of the general practitioner, wherever he may be located.

Dr. Sherman's high reputation commends his products to the profession.

MORE PHYLACOGEN FIGURES

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This statement has just been issued over the signature of Parke, Davis & Co., and a very impressive pronouncement it is. If there are members of the medical profession who have been wont to question the therapeutic efficacy of the Phylacogens, that "83 per cent of recoveries" should quickly remove their skepticism.

SAFE INVESTMENTS

No other business card appears in our columns which is of as much importance to our readers as that of the Corporation Securities Company. This is a high-grade financial institution offering real estate mortgages and bonds to investors in almost any sized amount desired, and the rate, 6 per cent, is the best obtainable with perfect security.

The company is a well established one, with a business extending to all parts of the Northwest. Its offices are in the Andrus Building, Minneapolis.

SALVARSAN IN SYPHILIS

Chetwood, of the New York Polyclinic Hospital, in his new work on "Urology," p. 781, says, regarding the use of salvarsan in syphilis: "One dose of salvarsan has demonstrated indisputably its influence in overcoming and controlling the symptoms during most active early stage, and of causing a cessation thereof for periods of varying duration. A single dose has demonstrated its ability to remove promptly the obstinate chronic lesions upon the skin and mucous membranes, and to cause enlargements of the organs and the bones to disappear in a short period. It may, therefore, be reasonably stated that one dose of salvarsan is the equivalent of several months of mercurial treatment."

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Physicians were quick to see that the preparation had marked merit, and the demand for it has extended to all parts of this country and to a number of foreign countries.

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The evils, both moral and physical, connected with the indiscriminate practice of giving massage, are very serious; and it was a recognition of this fact that led a number of the leading Minneapolis physicians to establish an institute which could do work equal to that done in the best foreign institutes. Mr. Th. I. Thomsen was engaged to conduct the institute, and he still is its director, and for many years he has maintained the entire confidence of the profession. He has a thoroughly equipped institution and employs competent men and women helpers.

The location of the institute is 122 Sixth Street South, Minneapolis.

SANITARY CLOSETS FOR SCHOOLS

The most troublesome problem that confronts every school board in charge of buildings without a water supply, is that of the closets; and the problem has long been a very hard one. Both our national and our state health officials are now agreed that the only satisfactory solution of this problem is germicidal treatment of the deposits. This is the basis of the solution, but it is not all of it, for the public demands more. The germicidal liquid must be odorless and, to a certain extent, nonpoisonous, and not dangerous to handle. Then, too, the receptacles, for the residence, the office, the bank, or the school-house, must be well-nigh perfect in their adaptibility to their respective needs.

Physicians, school officers, and custodians of public buildings bear testimony to the efficiency of the Rex Sanitary Closet in all the above lines. Many of our readers, in both their private and public capacity, have tested out the Rex Closet, and they bear testimony to its excellence.

MUDCURA SANITARIUM

Sulphur mud baths have an unquestioned therapeutic value in a large number and in a considerable variety of disorders, and the Northwest may consider itself fortunate to have an institution like the Mudcura Sanitarium, with its elegant modern building fully equipped for both the treatment and the comfort of patients, whether they go there in extremely warm or extremely cold weather.

Both the water and the mud are shown, by chemical examination, to be equal to any yet discovered; and the successs of the treatments ever since the sanitarium was opened, several years ago, has been uniform and almost always unfailing.

The institution is located near Shakopee, only a few miles from the Twin Cities, and is under the medical and business management of Dr. H. P. Fischer, a member of the State Medical Association. The manage-

ment is both ethical and honest, and commends itself to the confidence of the profession.

AUTUMNAL AILMENTS

The Autumn months constitute the season during which the average practicing physician is called upon to treat the following conditions: 1. Typhoid Fever, which is, more often that not, contracted at some unhygienic summer resort. The patient may return home during the first week or so, with headache, malaise, etc., or the premonitory or primary symptoms may appear after reaching home. 2. Malarial Infection, in certain sections, which is more than usually rife in the Spring and Fall seasons. 3. The after-results of the gastro-intestinal disorders of infants and young children, due to improper feeding, etc., during the heated term. In almost every instance, when the acute symptoms have subsided, a condition of anemia and general devitalization is the final result that constitutes the essential indication for treatment. In convalescence from all forms of illness resulting in general debility, Pepto-Mangan (Gude) is the one ideal tonic and reconstructive. It not only revitalizes the blood, but also tones up every physiologic function. It stimulates the appetite, improves the absorptive capacity, increases energy and ambition and restores the blood to its normal condition. It is, thus, a general tonic and reconstituent of marked and certain value.

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REPORT OF TWO CASES OF PONS TUMORS, ONE OF SARCOMA AND ONE OF GLIOSARCOMA, WITH HEMORRHAGE

By W. H. BODENSTAB, M. D.
BISMARCK, N. D.

While reviewing the literature on tumors of the brain, reported during the last twenty years, I was astonished to find so large a number of cases on record. It was also of interest to me to find that about twice as many cases were reported during the last ten years as during the preceding decade, which is due, probably, not to the fact that more tumors occurred, but that they were more efficiently diagnosed. There can be no question that modern methods of diagnosis and recent advances in surgical intervention have had a great deal to do with the discovery of tumors in the brain.

Concerning the location: By far the greater number were found in the frontoparietal lobes, constituting about 40 per cent of all brain tumors, while about 9 per cent were found in the pons. Of the latter, about 10 per cent were diagnosed, clinically, as tumors, but as no post-mortem examinations were secured the diagnoses could not be verified.

Nearly 50 per cent of all tumors found were gliomata, while only 8 per cent were sarcomata. It must be remembered, however, that the differential diagnosis is at times extremely difficult and uncertain, owing to the fact that some forms of glioma are indistinguishable from sarcoma, while others show evidence of sarcomatous infiltration, thus forming a combination of the two.

Regarding the etiology of brain tumor: It may be stated that in no case was there any evidence of hereditary tendency, but in a large percentage of cases there was a definite history of an injury to the head previous to the manifestations of the first symptoms.

Lesions of the pons are especially diverse in their symptomatology owing to the complex relations of the pons itself. Besides being an independent center, harboring a number of the nuclei of the cranial nerves, as well as many cranial nerves themselves in their passage to and from their primary nuclei, it contains the sensory and motor paths to and from the brain. The most characteristic symptom of lesions in the pons is crossed paralysis, or, as Gubler first described it, alternate hemiplegia. The symptoms, however, vary according to the extent and position of the lesion, and the cases which I am about to report give evidence of this fact inasmuch as there was a marked difference in the clinical manifestations, whereas the post-mortem sections show a nearly total destruction of the entire pons in both cases.

CASE 1.—Mrs. P. K., aged 24, married, and had two children, who are both well and strong. The patient has had no serious illness and no menstrual disturbances. Her father died at the age of 42 from blood-poison following a fracture of the leg. Her mother died at the age of 43 from an unknown cause. Her brothers and sisters are all living and well.

In December, 1909, the patient fell on frozen ground and injured her left thigh. The family

physician diagnosed a fracture of the left femur and instituted the required treatment, but without getting proper union. On March 17, 1910, she was admitted to the hospital, and the seat of the fracture was explored. There was solution of continuity at the junction of the middle and upper thirds of the femur, and there was found over the external surface of the fracture a soft grayish, bleeding, and partly encapsulated mass, which extended into the medulla of the upper fragment. This mass proved to be a spindle-celled sarcoma, which had developed at the seat of fracture, or, what is more probable, the patient had a pathological fracture as a result of the malignancy developing in the bone. Amputation at the hip-joint was decided upon, and on March 28th the operation was performed accordingly. (Plate I, Figs. 1 and 2.)

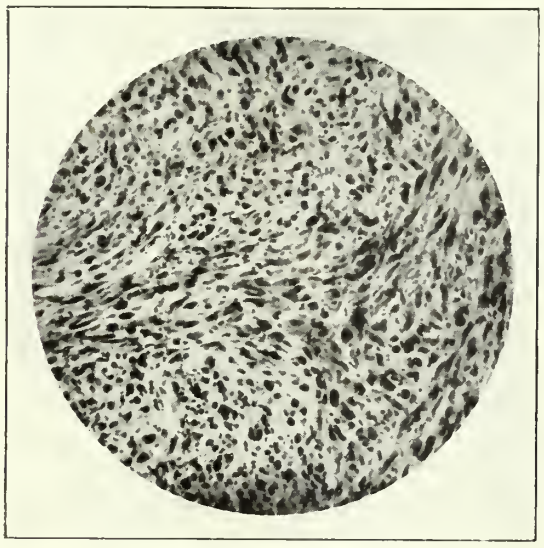

Plate I. Fig. 1. Spindle-celled sarcoma of the femur x 170.

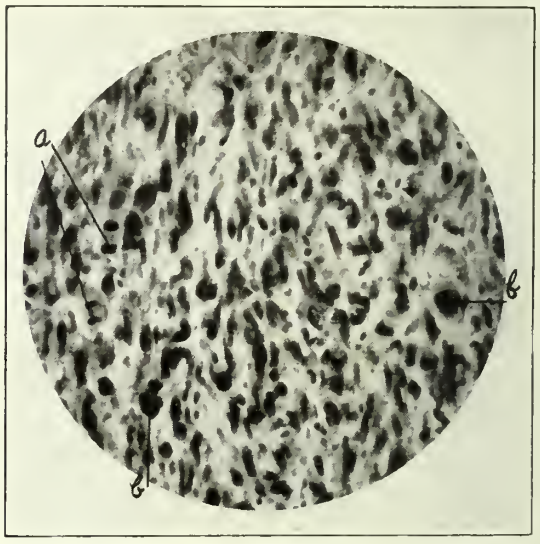

Plate I. Fig. 2. Spindle-celled sarcoma of the femur a, symmetrical bipolar mitoses; b, hyperchromatic mytoses with coalescent loops x 275.

On May 28, 1910, the patient was discharged in good condition, the wound being entirely healed, and there was no evidence of any recurrence.

The patient enjoyed good health for nearly two years, and in February, 1912, she began to have frequent attacks of headache in the occipital region. About the same time she noticed a gradually oncoming weakness of the left arm and a partial loss of vision in the right eye. She was again admitted to the hospital on March 1, 1912, when an examination revealed the following condition:

The patient is well nourished, has a good appetite, and pulse and temperature are normal. The mental attitude of the patient is acute: there is no difficulty of speech or deglutition. The pupils are equal and react to both light and accommodation. There is slight nystagmus of the right eye, but vision is apparently normal. The fundus is also normal. The chest and abdomen are negative. Sensation is not impaired, but the deep reflexes are markedly exaggerated. The left arm shows spastic paresis, and the fingers of the left hand are held in a flexed position and cannot be straightened owing to slight contractures. Taste, smell, and hearing are not impaired. The urine contains a trace of albumin and a few hyaline casts.

On March 15th there was noticed a slight paresis of the right side of the face, and five days later the patient developed dysphagia and dysarthria. The tongue was protruded to the right, and the taste and smell were markedly affected.

On April 1st she was unable to talk, could swallow only liquids, the right facial paresis was much more marked, and the left arm was paralyzed and stiff. She had to be catheterized twice a day. She grew steadily worse, and had developed ptosis of right eyelid and a right internal squint.

On April 15th there developed a slight spasticity in the right arm and right leg, and there was dorsal flexion on plantar stimulation. Sensation was still intact, and the patient now had urinary incontinence.

On April 19th her mentality became clouded;

there was double internal strabismus and marked inflammation of both conjunctivæ, and on the 21st there was a sudden rise of temperature to 108 F., which was soon followed by death.

The necropsy showed no organic changes anywhere in the body. On removing the skull-cap the dura was found adherent to the bone in various places. Along and on either side of the longitudinal sinus were fibrinous deposits on the brain, and the latter was markedly injected.

The anterior surface of the pons showed a hard, nodular mass, which did not increase the lumen of the pons and which was not adherent to the bone. On section the tumor proved to be a spindle-celled carcoma, secondary to the tumor in the femur, which was removed two years previously. There was a distinct line of demarcation between the tumor and the pons tissue, of which only a narrow margin of the dorsal portion remained. (Fig. 3 and 4 and Plate IV.)

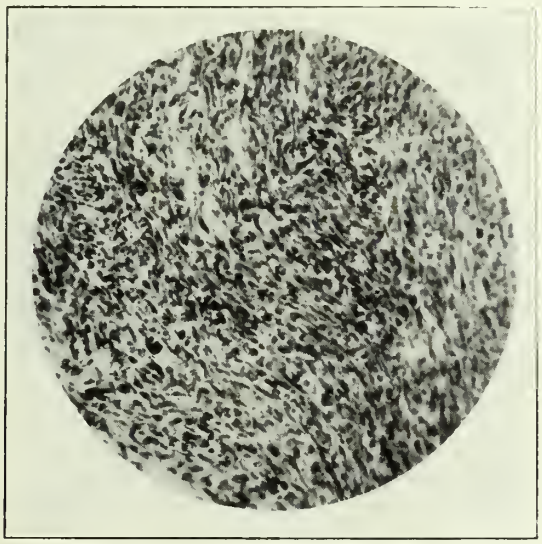

Plate II. Fig. 3. Spindle-celled sarcoma of the pons x 170

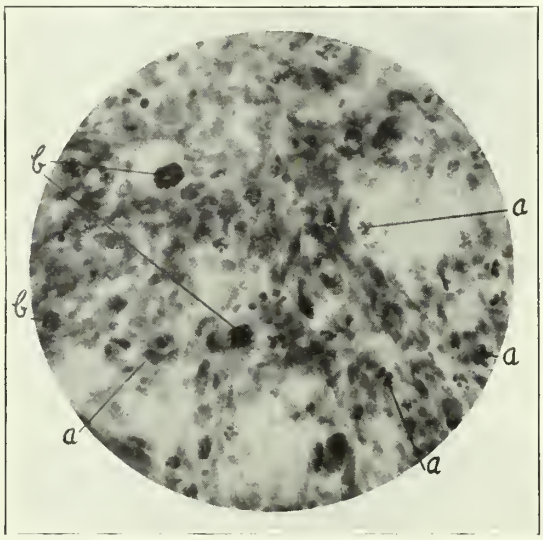

Plate II. Fig. 4. Spindle-celled sarcoma of the pons. a, asymmetrical mitoses; b, hyperchromatic mitoses x 375.

Case 2.—Lena M., aged 8 years, female. Both parents are living and well, seven brothers and sisters also living and well. The patient had had measles, chicken-pox, whooping cough, and smallpox, but otherwise enjoyed good health. She was well developed and bright; in fact her father thought she was exceptionally bright.

In November, 1911, the parents noticed that the patient became very irritable and would cry on the least provocation. She complained frequently of pain in the back of her head and a nasty taste in her mouth. She vomited frequently and had to discontinue her school work.

In December, about a month after the beginning of her trouble, the patient was at times unable to open her mouth, her jaw was set, and she complained of numbness in her left arm and left leg. The parents noticed, also, that she frequently had a right internal squint, which, however, was not permanent.

In February, 1912, the numbness in the left arm and leg increased, and the patient developed a paresis of the same extremities and also of the right side of the face. There was difficult urination, patient having to strain a long time before she could void. The headache and paralysis became gradually more marked, but she was able to walk until six weeks before death. She never had convulsions and never lost consciousness.

In April the retention developed into incontinence, and her headaches became practically unbearable. She was brought to the hospital on the 8th of May where she lapsed into unconsciousness and died in a short time.

Examination on admission was as follows: Pupils were small, but equal in size and reacted slightly to light. She had a very marked double choked disc and a paralysis of the left side of the body with anesthesia, and a paralysis of the right side of the face, and paresis of the right side of body.

The deep reflexes were present; she was extremely cyanosed, breathing was slow and labored, and the pulse was rapid and feeble, and she died apparently of failure of respiration.

Owing to the sudden death further examination was impossible.

The necropsy report was as follows: The examination shows a well-developed girl in good physical condition. No pathological changes were found in the body. The head was of normal size. The skull was very thin. There was marked intracranial pressure, so that the skull-cap was forced off before the bone was entirely cut through. A large amount of cerebrospinal fluid escaped when the dura was incised. The brain was very pale, and the sulci and convolutions were practically obliterated. The brain was soft and waterlogged, and the floor of the

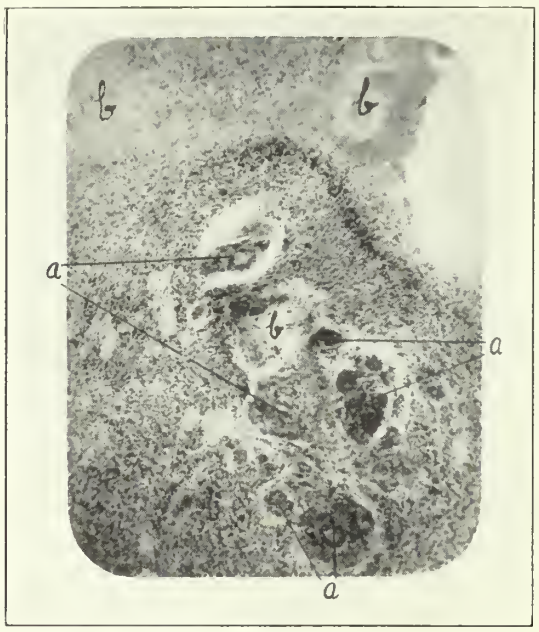

Plate III. Fig. 5. Gliosarcoma of the pons. a, blood-vessels; b, necrotic areas x 90.

third ventricle was distended and bulging and looked like a large blister. The pons was smooth and considerably enlarged, especially towards the right side. The ventricles were enormously distended and contained about 200 c.c. of fluid, and an index finger could easily be passed from the 3rd to the 4th ventricle.

On cross section the pons consisted of a homogenius substance, soft, and pinkish in color, and in the right half and encroaching upon the left side was found a fresh clot of blood 1½ cm. in diameter and surrounded by an area of necrotic tissue. (Plate IV, Fig. 1.) There was no line of demarcation between healthy and diseased tissue, and the whole pons was enlarged, constituting the so-called hypertrophy of the pons, which is frequently seen in gliomatous infiltration. Microscopic section proved it to be a gliosarcoma with necrosis and hemorrhage. (Fig. 5 and 6.)

We have here two cases which show, clinically, a definite lesion in the pons varolii. We find in both cases, at some time or other, the characteristic symptoms of intrapontine lesions, namely, crossed or contralateral paralysis.

In Case 1 the clinical diagnosis was easy, and one could without hesitation pronounce it a sarcoma of the pons in view of the definite history of malignancy, although cases are very rare in which metatastic sarcoma develops after two years. I was not able to find any record of secondary sarcoma of the pons.

The total absence of sensory disturbances prac-

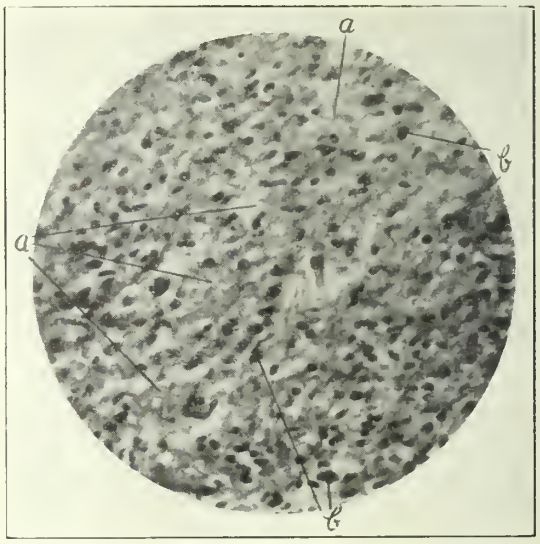

Plate III. Fig. 6. Gliosarcoma of the pons. a, gliafibers; b, gliacells x 325.

tically up to the time of death, is very interesting when we consider the large size of the tumor and the relatively small portion of healthy pons tissue remaining, and it must be explained by the fact that the tumor did not destroy the lemniscus or fillet, which conveys the sensory fibers to the brain, and which is located in the dorsal portion of the pons, the tumor undoubtedly having taken its origin in the ventral portion.

Pathologically, there can be no question as to the nature of the growth, and the similarity in structure between the primary growth in the femur and the secondary growth in the pons becomes at once apparent. Both specimens present many various forms of mitoses, which are, according to Hansemann, evidence of rapidly growing and highly malignant forms.

The second case presents a different type, and

although we have the characteristic crossed paralysis, the disease began with entirely different symptoms. When the tumor is an infiltrating glioma it is quite common to have a variability of symptoms.

In the first case we had no sensory disturbances, while in this case one of the earliest manifestations was anesthesia. In Case 1 the 5th nerve became disturbed only late in the disease, while here we have an early disturbance of the sense of taste and trismus, both being evidence of an early involvement of the motor and sensory fibers of the 5th nerve.

This tumor, undoubtedly, began in the dorsal portion of the pons, near the floor of the 4th ventricle, where the lemniscus is located, the infiltration having early affected the latter. The intense headache and optic neuritis were the result of the extreme internal hydrocephalus caused by an occlusion of the foramen of Majendie.

Regarding the pathological diagnosis: It is at times difficult to classify a tumor of this type. The original conception of a glioma was a simple overgrowth of the connective tissue of the brain, but it is rather uncommon to find these simple characters throughout the entire tumor.

According to Borst there are two kinds of gliomata, the hard and the soft, the distinction depending upon the quantitative relation between cells and fibers. A hard glioma contains many fibers and a relatively small number of cells, and a soft glioma is made up of many cells and fewer fibers. These latter are very prone to degenerate and form the so-called gliosarcomata. They grow rapidly and become very vascular. A condition which is quite common in this form of tumor is necrosis, due to swelling and proliferation of the intima, with complete blocking of the lumen. The blood-supply is consequently shut off, the chromatin of the nuclei disappears, and we have left only a feebly staining amorphous débris.

We have therefore all the elements necessary to substantiate the diagnosis of gliosarcoma, namely, a reticulated network of fibers, liberally infiltrated with glia cells in a rapidly growing, vascular tumor, with a tendency to necrosis and hemorrhage.

Plate IV

Gliosarcoma of the pons.—a, basilar artery; b, normal tissue; c, hemorrhagic area; d, necrotic area; e, tumor tissue.

Sarcoma of the pons.—Upper third: a, pons tissue; b, tumor tissue.

Sarcoma of the pons.—Lower third: a, pons tissue; b, tumor tissue.

THE PRIVATE LABORATORY—DOES IT PAY?*

By C. U. Moore, M. D.

CARTHAGE, S. D.

In his circular letter to physicians the first of the year Dr. Mortimer Herzberg, of the State University, asked this question, "Does the private laboratory pay?" He argued that, as doctors are too busy, the State should do all this work. We will grant in the beginning that if a man is too busy, he ought either to have a laboratory assistant or let the State do his work. But when is a man too busy? I believe that if a man has no outside interests requiring his time, he can himself handle all the simpler laboratory work connected with a $5,000 or $6,000 practice. It is to such that this paper is addressed,—the man who has time to study his patients and do laboratory work upon them.

The individual laboratory cannot profitably handle work that requires much time or constant attention, such as the growth and identification of bacteria or any kind of incubator work. What then should be its scope? It would be easy for a man who enjoys the work to spend hundreds of dollars in equipment and a vast amount of time in the use of it; but he would have to charge accordingly, and hence its usefulness would be curtailed. The work of the private laboratory need include but six items,—sputum, gastric contents, blood, pus, feces, and urine.

Sputum is examined for tubercle bacilli and connective tissue. The stomach contents are examined to ascertain the free, the combined, and the total acidity, lactic acid and, microscopically, for sacrinæ, yeast, and the Oppler-Boas bacilli.

In blood work one should estimate the number of red and white cells, respectively, and use a Wright's stain for cell-forms. Pus is examined for gonococci only. If an autogenous vaccine is desired it can be obtained through a more fully equipped laboratory. Feces is tested, chemically, for occult blood, and, microscopically, for the ova of parasites. In the study of urine, beside the usual chemical and microscopic examinations, we must, in certain cases, determine the amount of urea; in suspected pneumonia, the amount of chlorides, and in suspected typhoid, we would make the diazo test.

The cost of the private laboratory need not be prohibitive. The first and greatest expense is, of course, the microscope. I have a fine one that cost me but $50 second-hand. Beside this, which is used in nearly all kinds of laboratory work, there are special things needed for each subject.

For sputum work, the cover-glasses (.55), forceps (.25), slides (.55), alcohol lamp (.15), Canada balsam (.20), and an ounce bottle each of Gabbet's methylene-blue (.50) and carbolfuchsin (.50) solutions, costing a total of $3.05.

For stomach work one needs a graduated burette (1.75), a small graduate (.55), a tested decinormal sodium hydroxide solution (.40), phenol and ferric chloride (.20), and an ounce each of dimethylamidoazohenzol (.40) and phenolphtalin (.15) solutions, which cost $3.55.

For blood work one needs a three per cent acetic acid soloution (.05), Hayem's solution (.15), an ounce of Wright's triple stain (.56), filter paper to use in testing the percentage of hemaglobin (.10), and a hemocytometer with Turck ruling ($12.00)—parenthetically let me say that the Turck ruling gives much greater accuracy for the time required. Cost, $12.86.

For pus work Wright's triple stain shows the gonococci just as well as Gram's stain, so there is no additional expense here.

In feces work the microscope is usually all that is needed, but the Benzidin for Goodman's occult blood test costs but 60 cents.

For urine work one needs a centrifuge ($5.25), urinometer (.35), test tubes (.55) and rack (.35), nitric acid (.10), Haine's solution or Fehling's solution (.25), litmus paper (.20); and for urea tests, an ureometer (.85), potassium hydroxide (.10), bromine (.60); for chlorides, 12 per cent silver nitrate (.10); for diazo reactions, sodium nitrite (.30) and sulphonilic acid solution (.50). The total for urine is $9.50.

The total cost of equipment for the private laboratory to do the work outlined, amounts, then, to $79.66, or a little less than $80.

This brings us to the important question of dividends on our investment. These are twofold: financial and diagnostic. For concrete illustrations I turn to my ledger and my case-history file, with the year just ended as the basis of my computations. The financial is a delicate point which I dislike mentioning. One is so apt to be misunderstood, and it is insignificant, too, when compared with the diagnostic returns. We are all too prone to let the almighty dollar standardize our work. However, men who have

*Read before the Third District Medical Society of South Dakota, January 1, 1913.

done laboratory work gratuitously tell me that they soon neglect it in the press of other more remunerative work, which is a very natural result, for none of us likes to work without pay. The laity, too, realize this; and my experience has been that they want a doctor to study a case and get all the scientific sidelights possible. For this research work, they are not only willing to pay a fair price but they appreciate it in ways that money cannot measure.

I make the following charges:

Urine, chemical and microscopic examination	$1.50
Blood—	
Hemaglobin estimate	1.00
Leucocyte count	2.00
Erethrocyte count	2.00
Differential count	3.00
Stomach contents—	
Chemical and microscopic examination	3.00
Sputum stain	2.00
Pus stain	2.00

These are approximately half the prices charged by some in the city, and I find them satisfactory to patients. The revelations of the laboratory make one enjoy treating the chronics who, usually, are the best-paying class of patients.

My books for 1912, as tabulated by my wife, show returns as follows:

Sputum	$4.00
Pus	24.00
Stomach contents	39.00
Blood	86.00
Urine	146.00
Total	$299.00

This does not include work done on operative or obstetrical cases for which no charge is made. These figures are given purely as an illustration; but when a man's laboratory will pay 400 per cent on the investment, or, in other words, will pay both his house and office rent, we must conclude that it is not an unprofitable investment of either time or money.

However, the greater recompense cannot be estimated in percentages or standardized by money values, i. e., the recompense of accuracy in diagnosis. To illustrate this point I wish to relate a few case-histories.

Case 1. P. V., aged 36, a farmer of strong physique, complained of chills and fever, headache, and diarrhea. I found him abed sweating profusely; pulse, 80; temperature, 98.6°. Examination of chest and abdomen was negative. I began to wonder why I had been called eight miles on a cold January night. A urine speciman showed a specific gravity of 1013, clear, amber, no sediment, reaction slightly acid, no albumin by heat or nitric acid tests, and no sugar. The micriscope showed a large number of pus cells, proving the trouble to be cystitis.

Case 2. Mrs. G. W., aged 23, living in a hotel, complained of severe pains across the lower abdomen, loss of appetite, nausea, vomiting, nocturnal micturiton, and no diarrhea. Pulse, 100; temperature, 99.8°. The tongue had a thick coat and was very red at the edges. The abdomen showed general tenderness to pressure with the greatest tenderness at the McBurney point. There was no muscular rigidity, although considerable tympany. Vaginal examination showed the greatest tenderness in the right fornix. Urine examination was negative. The question arose: Is this typhoid, appendicitis, enteritis, pyelonephritis, or salpingitis? Valuable time would have been lost had I waited for a Widal test from the State laboratory, and then perhaps waited again for a urine examination. I tried the diazo reactions with a negative result, thus helping to disprove typhoid. I then did a leucocyte count at midnight with the husband waiting in my office. The count was 10,000, thus further eliminating typhoid and showing that there was no pus focus about ready to rupture. I concluded that it was an enteritis, and this was proven by the subsequent history of the case.

Case 3. Mrs. B. A., aged 62, complained of stomach trouble and general weakness. *Vomiting* was her principal symptom. Fats were vomited immediately, while beefsteak was retained several hours before being vomited. She complained of soreness across the lower part of the abdomen, and for this symptom two years previously she had undergone a panhysterectomy. She had had twelve children. Her confinements were always normal, she usually being abed only three days, and she had never had any menstrual trouble. The menopause was passed uneventfully, eleven years before. For five years she had had stomach trouble, especially in the fall when she worked hard.

I saw her first in January, 1912. Pulse, 82; temperature, 99.6°. Her color was slightly yellow, and the skin was loose and ill-fitting though not wasted. For three months she had been

losing weight, and for two weeks past had lost rapidly because of her constant vomiting. She was so weak that her hands and even her head trembled.

Chest examination showed the heart to be dilated to the left beyond the mammary line. There was a harsh, blowing, systolic murmur and an accentuated pulmonic second sound. The *manubrium* was very tender to pressure. The abdomen showed diffuse tenderness over the epigastrium and localized tenderness over the gall-bladder. The spleen was not palpable.

Urine examination gave a small amount of albumin, a few hyaline casts, and a large number of pus cells. Here, then, was a case which might from the symptoms be called jaundice, cholicystitis, Addison's disease, Bright's disease, heart disease, or cancer of the stomach.

Because of the tender sternum I took out my blood-apparatus. As soon as I pricked the ear a light-red, watery blood ran out. This on examination showed a hemoglobin percentage of 30. The leucocyte count was 8,000; the erythrocyte count 1,050,000; and the color-index 1+.

This practically gave me the diagnosis, but to be doubly sure I made a Wright's stain, and the first field under the microscope gave an abundance of poikilocytes. After considerable search I found three megaloblasts, and pernicious anemia, a disease which I never expected to find in a country practice, stared me in the face.

Frankly, I sometimes feel like petting that little miscoscope because it has so often cleared away the fog surrounding a diagnosis.

SUMMARY

The scope of the private laboratory should include the simpler tests with sputum, gastric contents, blood, pus, feces, and urine. The cost of equipment need not exceed $80; the financial returns may average 400 per cent or more.

The diagnostic value is incomputable. It eliminates guessing, keeps a man in love with his profession and in touch with the latest advances.

SEX EDUCATION FROM A PHYSICIAN'S VIEWPOINT*

By R. P. Frink, M. D.

WAGNER, S. D.

Four years ago a physician in one of our western states wrote a physiology and ventured to insert a chapter on reproduction. His publisher refused to print that chapter.

Today the question of sex education and sex hygiene is occupying the attention of the entire country. We have been caught in the wave of the movement which is destined to change the social world and to base man's future happiness upon the solid foundation of knowledge, purity, and a perfect understanding between the sexes.

"It is better to know things right than to know them wrong" shall be our watchword in presenting this paper.

Many of our important medical problems are those of public health, dealing with social diseases, and these must be solved by men with knowledge of social science. We are in possession of the medical science, and our next step in advancement, if we are to be the real profession of influence in uplifting humanity and doing good where good is most needed, is to become better students of sociology. To attain the highest degree of ideals of *helpful, healthful* morals in our individual communities we must doctor *cases* less and *people* more.

We are all guilty of the same fault, actuated by the same sense of fear that perhaps our practice is going to be hurt if we exert our full manhood and professional dignity and tell the whole truth to men and women and to boys and girls.

So far as we can apprehend nature's design in the sexual life of humanity her specific function is reproduction of life to the next generation. The hygiene of sex has for its ultimate object the insuring of the production of good health to the individual and to its offspring.

Should young people be instructed in the laws governing this function?

The policy of the past in our educational system has been such as to give a negative answer to the above question. For centuries past silence or secrecy has been imposed on everything relating to sex. Tradition has imposed upon the instructors of youth an edict of silence concerning all knowledge of human reproduction. The text-

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

books used in schools in describing the body's function and structure taboo the generative function as completely as though such organs never existed. Such information has been deemed immodest, unfit, and degrading. There can be no greater satire upon creative wisdom than to assume that a knowledge of the function which is given to co-operate in the divine mission of creation and to which the life of the race is entrusted, is not fit to be taught to young people.

But how do they get their information?

Much of our current literature that passes as good fiction appeals to the youth. A great deal of it has for its chief allurement for a young mind something suggestive about sex relations. Of course it is not immodest or in any way indecent, yet it arouses the curiosity of uninstructed minds. They want to know why? Just for one example to show how the demand is growing for such literature, call it high class if you want to, the fact remains that the Cosmopolitan Magazine almost doubled its circulation after the story "The Common Law" began. Randolph Hearst having acquired control of this publication, and knowing the growing insatiable desire for such grade of fiction, advised his managers to "dish up the sex stuff."

Newspapers with their disclosures of trials, divorces, murders, etc., are only fanning this flame of curiosity in our youth.

We know our boys and girls at the age of puberty when their sexual nature is beginning to manifest itself are easily led to form wrong ideas of the functions given them. All of you present have come from homes that were above the average, having parents of higher intelligence than the ordinary home, yet where did you learn the simple rules and functions of sex nature? You know you learned it after you entered school, and it was not from the teacher inside the schoolroom, but you will confess, if you tell the truth, it was from some older boy outdoors or in the water-closets. And you know you learned it wrong with all its vile and filthy embellishments. This may not be pleasing to our present esthetic nature, and we would forsooth dismiss it all and say "Let the parents look after this instruction, it doesn't concern me or my business." But let us remember our calling. The high ideals of our profession recognize that the greatest and noblest efforts are always towards *prevention*.

Ignorance has caused much of our sex diseases. Our court calendars are filled with divorce cases due to some sex mistake of one or the other party.

It is said that only 10 per cent of the prostitutes enter that life from mere choice. Some are driven to it from economic reasons, but a vast majority find this the only means of a livelihood after suffering disgrace and ruin from actions and liberties taken. The dire consequences of these had never been thoroughly instilled into their minds and morals from some one whom they could respect.

In our state we have no very large cities with their flaunting red-light districts producing their daily crop of syphilitics, gonorrheics, etc., so this feature of venereal diseases and their spread is not such a vital question as it is in our eastern states. But, admitting that this evil is comparatively rare in our rural districts, we have, however, that other great evil as strongly implanted in every community as in the cities, namely, illegitimate pregnancies in our young girls. Every one of us has it to contend with more times each year than we like to admit.

Direct questioning of the unfortunate girl will reveal in a majority of cases that she was truly ignorant of where her actions would lead her. Her mother may have hinted at a warning, but she never gave her plain facts for guidance.

This new movement, of educating all our youth in these real fundamental physiological facts was started only three or four years ago. By some it is considered only a "fad," "a new educational experiment from some of our long-haired theorists in pedagogy," the product of some would-be reformer's neurasthenic mind, promulgated by a few sexually morbid medical men, etc. Nearly the same thing was said thirty years ago from some medical men when the movement was started to put the teaching of the evil effects of alcohol and narcotics in our schools. Can we find evil results of that teaching? The W. C. T. U., the originator of the movement, was maligned and subjected to severe criticism then. We hear the objection that youthful minds will be unduly awakened or stimulated in a way not desirable.

Why don't we object to the teaching of botany, biology, zoology, and embryology? Here the complex sex nature of plants, insects, animals, and their embryonic development is taught to mixed sexes with no apparent embarrassment of pupil or teacher. Generally speaking, it is all the instruction they ever get along the lines of scientific reproduction. Why could not one step

more be taken and these same facts made to apply to the human family? Are we not worth more and is not a knowledge of our functions vastly more important than the growth of a hill of beans, a fish's spawn, or how a chicken comes from an egg.

What harm is created by a boy knowing the real facts concerning the function of his testicles and their place in human nature? What harm is created by his knowing how to care for them and be clean in his thoughts and desires?

Is a young girl injured in her purity of mind by knowing the only divine function of her ovaries or the use the Creator intended her to make of her uterus? Are either polluted in knowing the dangers of acquired venereal diseases? Would they be degraded in the estimation of so-called society if both knew some of the direful results in losing control of their sex impulses?

Teachers, physicians, and intelligent parents are coming to realize that laws, city ordinances, or salvarsan and silver alone will not cure the social evil. In the end all this progress toward reform must hinge on education. This movement is not growing in vain. It is upon us and will be upon us more and more in the next five years. The medical profession must take the initiative in inculcating the correct methods in handling it and the amount of instruction to be given, and in most instances they must furnish the knowledge themselves.

One of our first duties as medical students was the study of embryology and physiology, sciences which teach how great the power functions have to change the form and substances of the body. We ought to know how large a part the reproductive power plays in essential fundamental activities of the whole mental and physical growth.

We know that the sex glands constitute the very fountain of life.

We know the powers of the laws of heredity and how important it is that the race cultivate health as a basis for sound mind, so valuable to culture and material progress.

We know that youths have a right to demand clean bodies, clean morals, clean minds, three foundation virtues that must be established in every boy's and girl's character.

Unless we teach these truths we shall be false to the honor of our profession and unworthy of the confidence of the people. The issue is clearly drawn. Our duty is to help make scientific knowledge and facts available to all the people.

Lydston says: "Sex secrecy, false modesty, and moral cowardice have been the upas-tree under which quackery, ignorance, vice and venereal diseases have flourished and destroyed youth. A new era in the education of youth is dawning. It is an era of progress and it is the duty of parent, teacher, sociologist and physician alike to help the good work along."

We know the ease with which quacks get their clutches on unfortunate subjects of sexual ailments, real or imaginary. It is their most prolific field. The poor young fellow does not know and will believe anything told him relative to his condition, and he always wants to hear the worst, craves for the impossible in his case, and no amount of sensible reasoning can dissuade him from the belief that he is doomed to an impotent life.

This class of erroneously taught youth is what fattens the purse of the merciless quack. You all know how hard it is to deal with the fellows when once their mind is set on some slight derangement of their reproductive organs. It would be amusing were it not so serious, after explaining to some youth who has come to you with a slight trouble and you have done your very best with your advice, making assurance of the strongest kind to him that he will be all right, in short using every possible means you can command, to have him say with a sigh when you have finished, "Well, doctor, what do you think of my case anyway?" Such a condition of mind might be averted in any youth who had had some instruction given him before his imaginary ailment became so real to him.

Before coming to the report of my questionaire let me give you some of the opinions of our leaders in medicine as gleaned from the literature of today and some of the societies and organizations at work with the problem.

Winfield Scott Hall says that statistics gathered by him indicate that not more than one person out of twenty has received any instruction or information from parents that would be called adequate in a sense that it is sufficient to serve as a guide to the young person in questions in the sex problems of life. That means that an overwhelming majority of young people pass out into the business, professional, and social world to drift without chart or compass. He further states that there is something wrong with society. This something wrong is nothing more nor less than sexual wrong living on the part of the chil-

dren, young people, and parents. This condition can be corrected only through education, which, to be effective, must be given in childhood and progress through youth. He rests the responsibility upon parents which can not be shifted to others shoulders, but help can be called in from the teacher, physician or social worker. But in no case should the parents rest free from the responsibility.

G. Frank Lydston states, "The field of Sex Education is new, so new that we must begin at the top. Begin by educating the educator. Small wonder that teacher, parent, and physician hardly know where to begin, or how far to go. The time will come when sex hygiene will be a natural and inevitable part of education and those whom we would fain instruct will no longer blush, still less will they giggle. Meanwhile, let us bear up under the giggling of today in the hopes that it will help check the tears of tomorrow?"

Dr. Prince A. Morrow, once president of the American Federation for Sex Hygiene, now deceased, says, "It is believed by those who have made an intelligent study of causes and conditions that ignorance is the basic cause, and that the solution of this problem of prevention must be approached through education. The radical remedy is a reform in our educational system, both parental and scholastic, which now ignores the sexual organization of the individual. Mothers educate their daughters from their earliest years in prudery, and flatter themselves that they have thereby promoted their modesty and morality. They are sent into the world with no more preparation than if they were going to live in paradise."

Societies organized for the purpose of furthering the cause are becoming numerous. The American Federation for Sex Hygiene is now in its third year.

The primary and specific object is to study means most effective in preventing vice and spread of venereal diseases.

It proposes an educational campaign of:

1. Enlightenment to the public of such diseases and dangers to public health. 2. The education of parents to the importance of instructing their children at an early age in the origin of life. 3. Education of young people in hygiene of sex by introducing it into schools and colleges.

The Society of Sanitary and Moral Prophylaxis was organized in 1905 and is the pioneer of the movement. Its object is the study and prevention of the spread of diseases which have their origin in the social evil. Its work is along educational lines through public meetings, conferences and circulation of literature. It has its official journal and employs ten regularly appointed lecturers who travel about lecturing to mothers' clubs, to schools, or wherever sentiment demands them. The states having branches of this organization are Pennsylvania, Maryland, Colorado, California, West Virginia, Indiana, Connecticut, New Jersey, Texas. The cities are Seattle, Milwaukee, Detroit, Portland, Spokane, St. Louis, Chicago.

Now, let me give you some of the arguments advanced against sex education.

It is apparent to all that one of the chief sources of objection will come from the parents themselves. This natural custom of ancient origin, of keeping the youth in ignorance of the important laws of nature, is hard to overcome. The most intelligent of parents will not all object, but some will, preferring to do it themselves. All well and good, then, from them. There is where it should be taught in the first place. The middle class of ordinary intelligent parents will object at first. The parents of low intelligence usually do not take enough interest in what is going on in school to even recognize what is being taught. If they are all given a chance to understand something of the importance by a few lectures to mothers first in each community, most of the objections would be overcome. Most parents want their children to know something of it, but dread to tell them or do not know how themselves.

The greatest of all of course is to secure someone to present the subject. Whoever it is it must be a man of clean morals, with the highest of ideals, interested in education and the growing youth. We will all admit that our ordinary teacher of average ability would be a failure in dealing with ages past puberty. We no doubt will have teachers in the near future who are qualified, for many of our normal schools are doing something toward instructing them. However, it is not so much the real knowledge possessed as it is the power of the personality behind it that is going to develop the child's mind in purity and respectful attitude toward the subject. The best teacher in the country would be a failure if there was known to exist in her or his life anything impure. It is character that is demanded, as well as information in the makeup of the teacher,

Now, to come to the age at which this instruction shall be given:

A diversity of opinion exists as to how old the child should be before being taught something in regard to his or her sex peculiarity. In the home it must be told early, of course, as soon as it can be comprehended. We would be surprised to know how young some boys and girls acquire that knowledge from vicious sources. In school it surely ought to be presented to each sex two years before puberty. Let them know correctly before their sex nature is fully aroused. It will serve as a good guide and guard against missteps during the change in their physiological functions.

To wait till puberty is to make the instruction more difficult. It has acquired wrong information which must be unlearned. It has developed modesty by this time, causing the barrier of shame to be created. There can be no arbitrary standard, but the average child should have instruction at about the seventh grade. The ordinary child reaches this grade at 12 to 13 and as many never get into high school it is wrong to delay it till then. Nineteen-twentieths of the children never go beyond the grammar grades.

Some precocious children with an evil tendency toward sowing corruption to others or who possess minds unduly stimulated by any suggestion of vulgarity should be taught earlier. "Get the weeds out early," one doctor reported.

This question as to the age it should be taught might well be left with our teachers and educators to work out by experiment, always keeping in mind two basic principles, namely, teach no evil and teach in time to preserve physical and moral well being.

Now, as to who shall impart the instruction:

It has been conceded to be the parents' duty primarily, but that it has been universally neglected has been shown.

Many theories and ideal suggestions are advanced but in practical application to meet the conditions now existing, the physician is first choice. Not every physician is qualified, either, not so much from lack of knowledge as from lack of teaching ability. He must be vitally interested in children, in the good of humanity, and he must have the respect of the community. He must be imbued with a love of children and actuated by only the noblest of motives. He may be the resident physician of the town, or, as has been suggested in the questionaire, he may be appointed by the health board of county or state. In this the medical profession cannot be charged by the members of the teaching profession with usurping their field.

The report of societies and bodies organized for promulgating this knowledge shows that, though the leaders nearly all belong to our educational field, yet they confess in their own words their dependence upon the medical profession for their help in obtaining the facts to be presented.

Now, as to whether separate instruction shall be given to the sexes, or whether both sexes should be instructed in the facts concerning the opposite:

To meet all practical needs, they had best receive only that pertaining to individual sex. As they become older in the colleges and nearer to the time when they might rightfully expect to assume parenthood, a thorough course of hygiene for the male, and also for the female, may be greatly beneficial.

It is advisable for the sexes to be separated during the courses; at least, so most of the educators expressing themselves, advise. At any rate no good argument in favor of uniting them has been advanced.

REPORT OF QUESTIONAIRE

As a result of the little questionaire sent out which you all received and in which you were given opportunity of expressing your opinion on four questions contained, I have the following report to make: 200 replies were received, all from physicians in the state; 190 expressed themselves as believing that the youth of our state should have special instruction; 10 answered this by saying they should not. This showed a percentage favoring it of 95 per cent of the physicians. Thus there was an almost unanimous decision in favor of such instruction.

As to the second question, whether or not a course should be put in our schools, there was, as a result of this, 200 replies; 162 said that it should, while 38 objected, showing a percentage favoring it being taught in our schools of 80 per cent. As to the period of school life to have it presented, the cards showed great variations of opinions, as would of course be the natural thing expected. Thirty said in all the grades, 28 said in the eighth grade, 7 from beginning to end of school life, 91 said in the high school, 23 said in the colleges, 22 in the home.

As to the fourth question, as to who should furnish the instruction, again a diversity of opinion was revealed. Ninety-six favored the mem-

bers of the medical profession, 28 said it should be by members of the profession, but separate instructors for each sex, 8 by specially appointed physicians of health board, etc., 21 by special instructor. Only 12 favored it being given by the regular teacher in the schools. One doctor tersely put it, "A wise man for boys and a wise woman for girls."

Now, this expression was given by the physicians, I hope, after sincere thinking and without any of them knowing the position the writer was going to take in presenting the subject.

The most interesting feature is the fact that so very few expressed themselves in favor of the regular teacher being the instructor. It only helps to prove a self-evident fact that the average teacher is not the person who shall attempt this work, at least not until our normals and colleges prepare him for it.

Now, as to the methods to be used in teaching: Here again is another apparent obstacle owing to the fact that there is no regular prescribed course outlined. We can reasonably expect, however, that some good standard work will be published in the near future. I understand that Dr. Jones, of our University, is working upon a short outline.

Of course, the simple explanation can be based upon plant life, development of the chick, etc., gradually leading up to the other domestic animals and then relation to the human family. It is difficult to the majority of instructors even to make this last advanced step. It seems easy in theory, but upon meditation it discloses to each of us just where we are actually at a loss for something tangible and easily understood by small children.

One good talk once a month would cover all the essential points up to the high-school period. After that the lecture method adopted in colleges might be used with drawings, etc., with perhaps some good pamphlets for distribution. They are capable here of understanding more of the complex nature of reproduction as their botany, zoology, or biology will correlate with it.

To give a complete outline for a course of study in the high school is beyond the writer's intention and would require another paper. The essential facts, and this to be the minimum, will be given.

FOR BOYS

1. Anatomy of all organs of generation.
2. Physiology of some with nerve control.
3. Mechanism of urination.
4. Stimulating effects of alcohol, drugs, suggestive pictures, low dance halls, erotic literature, etc.
5. A practical understanding of the common venereal diseases and masturbation and their fullest dire effects explained.
6. Contempt for all vulgarity in others.
7. Warnings against associations in any way with prostitutes. Illustrations of how such women ply their trade.
8. Conduct when in the presence of girl friends.
9. Sacredness of the marriage state.
10. Creation of desire on their part to be a man in the fullest sense of the word.

All this could be taught and with no degree of harm whatever to the boy. Much more might be added.

FOR GIRLS

1. Cleanliness in body and mind.
2. Anatomy and physiology of pelvic organs.
3. Menstruation, hygiene and care during the period.
4. Ovulation, fertilization, and development of human embryo.
5. Full meaning and importance of motherhood.
6. Less concerning diseases than for boys.
7. Proper social relationship with boys.
8. Creation of desire for all that goes to make pure womanhood and fulfillment of nature's design in the perpetuation of the race.

In conclusion, allow me to say that since it is almost unanimously agreed that our youth need this instruction, that they will get the knowledge anyway from wrong sources, that many times diseases are acquired and spread through ignorance, and that it is the first duty of the physician to teach prevention, therefore, it is before us as a vital question, so, "What shall we do with the problem?"

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DISCUSSION

Dr. W. Franklin Jones, Head of Department of Education, University of South Dakota (Vermillion):

Mr. President and Gentlemen of the Medical Profession: I come to you this morning, not as a doctor of medicine, but, rather, as one who is both willingly and of necessity interested in the movement for sex education. I come to you as an educator to discuss this paper from an educational standpoint.

I have been keenly interested in Dr. Frink's paper. It sets forth clearly and comprehensively the voice of the medical profession of our state regarding our new problem of sex education. Now, undoubtedly, what you want to know of me is, "What are the schoolmen looking forward to in this problem of sex education?" I will therefore take up and review briefly some of the points which the paper has just covered, and offer my own views.

The first point is, I am not at all astonished that 95 per cent of the physicians of the state responding to Dr. Frink's questionaire have taken the position in favor of the sex movement. I wish to assure you that teachers are just as profoundly in favor of the movement as you are. Teachers and physicians see different sides of the same problem. What comes to you in the form of venereal disease, or perhaps as a broken-down nervous mechanism due to masturbation, has already come to the educator and to the teacher in the shape of morbid conduct. Now, we teachers have never been able to attack this phase of the moral problem in any deep-rooted and thorough-going way, because of the universal conspiracy of silence in matters pertaining to sex. In other words, with the teacher it is not a medical problem, but a moral problem; and it has long been observed by teachers of experience that the very demon that we most despise, namely, ignorance, has been collecting a fearful toll from our charges in the form of mental and physical diseases, which might have been checked in their incubation had teachers been free to deal with sex problems in thorough-going ways. Immorality goes on and on, and we are not at liberty to handle the problem effectively because of a blind and ignorant tradition. With our hands tied, we have seen immorality at work in our schools, blasting our hopes and ultimately sending thousands of our young to you for over-delayed treatment.

Now, my brethren, the educator well knows that it is not a question of whether or not the young shall receive sex education. There always has been and always will be sex instruction. I got mine, and you got yours; and we all get this instruction, such as it is. The question is, "Shall the child receive his sex instruction from hands in which it is safest, or shall he continue to receive it from the outhouse and from the alley and from sources unsafest?" The awful fact is, sex education has been in the hands of the most unfit, and no one knows better than the physician what consequences we are reaping.

Now arises the question, "Can we leave the matter of sex education in the hands of parents?" Well, that is just where it has been for centuries. Do you wish to know how the mothers of South Dakota answer this question? I have been making this inquiry during the past year. As many of you already know, I have been responding liberally to calls for sex lectures from women's organizations of our state for the past year. I believe I have given twenty-three such lectures up to the present time. I have asked many of my audiences this question, namely, "May we intrust sex education to the home?" And now, my medical brethren, I hardly think it will astonish you when I tell you that nine-tenths of the intelligent motherhood of my audiences in this state promptly respond that they are incompetent because they do not know many things that they would like their sons and daughters to know. It takes intelligence to know one's own ignorance, and this our South Dakota mothers know. When one of my audiences of 400 mothers had so responded to my question, I at once offered a second question, namely, "How many of you would assume this important duty if means were provided for schooling mothers and fathers?" Again I think it will not astonish all of you when I say that 152 out of these 400 intelligent mothers arose and said deliberately that they simply could not talk sex matters candidly with their daughters, to say nothing of their sons. The fact is, brethren, our present race has been very badly brought up for this purpose. The conspiracy of silence has made it hard for us to look our children in the face and give them a safe and decent sex education. We have been taught to look upon sex matters as shameful affairs. Ours is the morbid view. Once more, I think it will hardly astonish the physician when I say that I have had scores of intelligent mothers beg of me to come to their homes and teach their daughters what they should know. The fact is evident that we shall have to educate our race differently and remove the ignorant shame from sex education before either teachers or mothers will attack this problem sincerely and confidently and frankly and well.

Sooner or later, then, we must prepare our race to meet the problem of sex education by teaching them that this problem can be met as candidly and as effectively as we meet other educational problems. Some of us see the problem far more clearly than others. And now, my medical brethren, I would have you believe that the institution which we call the public school is not and can not be a reformatory institution. The school can not go a step farther than the people behind it are willing for it to go. When the people are ready to have the schools take up the problem of sex instruction, teachers will respond; but they will never undertake this duty until they know their constituents are behind the movement. Without any arguments, for or against, I am ready to say that the schools of South Dakota will soon be handling the problem of sex education. We are ready when the people so rule. And now may I say in unmistakable terms that, whatever else the South Dakota State Medical Association does for the sex problem, you should go on record as a profession in favor of this movement as indicated by the result of Dr. Frink's questionaire. It will serve as a public reference, and when I talk the sex education problem over the state I can say that the South Dakota State Medical Association is backing this movement. It will give us a tremendous impetus, and you and I know that the movement should not be longer delayed.

I have found some slight opposition to the movement in our state; but that opposition always comes from people who have not seen either (1) what the conditions are that we are in serious need of removing, or (2) how we can handle the problem safely. When people understand the problem as we already know it, and how we have planned to handle the dangerous problem, opposition disappears. Now, our present problem is not so much that of putting teachers in possession of the scien-

tific facts to be taught, as it is the method—the handling, the skilful treatment, of the subject matter. There is the danger of arousing the morbid appetite. This is a new problem in education in that it is quite different from anything we have met before. In other fields of education we strive to arouse abiding interests. Here we are to avoid curiosity, interest.

I was interested in Dr. Frink's statement that his questionaire showed that the physicians of the state believe that physicians should be the teachers of sex in the schools. Gentlemen, I thank you for this candid voice of willingness to assist us in handling the problem; but may I as candidly state that I anticipate that few of you will ever come into our schools as teachers? I remember that you are a busy set of men. Your classes would often find you tied up with cases that you could not leave. Then, too, I think that when you came to plan your work for the first lesson it would perhaps dawn upon most of you that, after all, it is the teaching technic, and not the subject-matter, that is our hard problem. I believe that you would soon vote that it is far easier to put our better teachers in command of the subject-matter of sex education than to make skilful teachers out of physicians.

You will no doubt be interested to know that the University of South Dakota has been working for some time on a suitable course of study in this field, and we have gone into the details of teaching the same. I could easily wish that I had time to go into this subject in detail. I believe I could answer most of the questions that you would see fit to ask concerning either subject-matter or the methods of teaching the same. I wish to state frankly that we have no teachers as yet who are ready to handle the sex problem, but we are shaping our forces, and we shall have teachers prepared for this delicate work when we are called upon to supply them.

In conclusion, I wish to assure you that I am very glad to see that the South Dakota State Medical Association is willing to take up and fight this battle with us, because it is one of the hardest things to handle that has ever come to the educator. We are meeting it. We are no longer afraid of it. Every time I have been called to teachers' institutes to present this topic, I have done so. I have been glad to go, and I only regret that there are not more workers in this state who can take up this problem, so that in time we can say that South Dakota is furnishing at least a safe and decent education for her young in the dangerous world of sex relations. (Applause.)

Dr. Thomas Cruikshank (Vermillion): There is one thing sure, and that is that you cannot legislate people to be good. You may legislate against the saloons and the liquor traffic, but the people will drink just as long as they have a mind to. The mayor of Vermillion told us this morning, that we have not had a saloon in this city for thirty-two years. That is good. I believe it is true; but I see those poor miserable wretches who buy stomach-bitters and lemon extracts, and they get drunk as lords. It is the same way with reference to sex education. If you are going to stop the liquor traffic you will have to educate the people. If we are going to improve in our morals we shall have to teach the children.

During the fourteen years I have been engaged in practice I have seen the results of immorality in a very striking way. I did not think of these things so much at first, but when patients came to see me day after day and week after week I began to think there was something wrong in our social system, and I thought over it a good deal. I have seen more heartaches, more tears shed, and more misery from ignorance in that line alone than from anything else in my practice. The question arises, when are we going to begin this education? The gentlemen in this audience who have been in the saddle for a good many years, know more about it than I. Some of these little tots are very wise about sexual matters, and we get the other extremes. In fact, I have met ignorance in the upper classes of the university students that was amazing. I think we cannot begin too early this sex education. Of course, it has got to be done gradually. When you begin to educate a child, you give it the first reader, and not the sixth reader, and so the education should begin in regard to sex matters. I think we should begin in a small and simple way. I am sure, if any of you were to watch the back alleys occasionally, you would get wiser, you would see what happens, and there would not be any question in your minds as to what is going on, and the sooner the child is instructed to a certain degree in sex matters the better it will be. When we look upon the diseases that undermine the constitution of patients and render their lives miserable, the diseases that are being transplanted to posterity, it is astonishing, and it is high time that we as physicians of this state should get together and take a hand in the movement. We are not only physicians of the state, but citizens also; and we should get together as one man and stand for something.

As for teaching sex matters in the public schools, I believe they should be taught there if we can get competent teachers to impart this knowledge, but I venture to say that 95 per cent of the teachers in our public schools are incompetent to teach sex education. This instruction should be started early, and I would like to see it started and carried on, and when it is done I think we shall reach a harvest of gratitude and satisfaction that will be a way beyond our comprehension. It is nothing but false modesty that keeps us away from it. Our sexual organs are no more dishonorable than are our hands and face. They were given to us by God Almighty, and we think it is wrong to talk about them and not to tell the youths about them, and how they should be taken care of. I think it is something we have absolutely neglected and for which we are responsible. As a profession, we should encourage this movement and go forward and do what is our duty.

Dr. Daniel Moore (Yankton): The morality of the young is at a higher plane today than ever before in the history of the world. At no time has the service of the physician been required in the elevation of moral standards. There are two factors which have to do essentially with the forming of the young person's ideal, religious motive and parental influence. Ideals do not spring from things physical, but take their origin from spiritual sources. If the child's inclination is wrong, search into its heredity, and you will find that correction should have been instituted generations before. Again, I wish to call your attention to the fact that matter and spirit will not mix, and it is mere folly to try to mix matter and spirit.

Maria Montesori, the world's greatest authority in kindergarten work, urges and insists that thoughts not essential be kept from the child's mind to the end that

morbid desire may not obtain. Virtue is a delicate flower which grows not well under the cold breath of science, and it buds and blossoms under correct parental influence and through the grace of God.

Dr. H. J. G. Koobs (Scotland): I want to commend Dr. Frink's paper and thank him for it, as I am heartily in sympathy with the movement he advocates. I realize the importance of this subject, and I do believe that our youths should be educated. I trust that the influence of this paper will pass on to the members of our profession in this state.

While I have not given the matter much thought, yet the subject has come to my notice, and it is a perplexing problem as to how to attack it. In my estimation it is the home where moral training should have its principal source. It is the mother who should educate her daughter and tell her these things. It is the father who should educate the boy and acquaint him with the pitfalls and vicissitudes of life, but the trouble is, that so many parents do not do it, and how many parents are there who are qualified to do it? And there is the crux of the matter. Too few parents read sufficiently to instruct their children along this line. The medical profession is hardly in a position to take up this work. However, we should put our stamp of approval on it, but there should be, in my estimation, special instructors, and this work should be delegated to the general teaching fraternity provided they have proper education along these lines in the first place, and that they are the right persons to deal with the subject.

NOTE.—Dr. Hohf's remarks and resolutions on page 481 of our last issue belonged to this paper.—The Editor.

SOME FEATURES IN THE LOCAL PRACTICE OF MEDICINE*

By R. H. Ray, M. D.

GARRISON, N. D.

I have been impressed during a residence at Garrison, North Dakota, a town about seven miles from the Missouri River, with some features of medical work that have certain points in common. There appears to be to some extent a co-relation between the various disorders indicating similar causes.

The respiratory troubles are not a very large factor in the diseases of this community. I believe the tubercular affections also to be below the average. I have not had over seven cases of lobar pneumonia during my residence here.

Our diseases have been those of the primæ viæ or some disorder of metabolism. My enumeration of the principal conditions would be as follows: pyorrhea, or Rigg's disease (I should estimate that over 50 per cent of the adult population have this trouble), auto-intoxication, appendicitis, the various catarrhal affections of the stomach and intestinal tract, gall-bladder disorders, goiter, typhoid when infection is present, and some skin disorders. The end-results of the local conditions are arteriosclerosis, myocarditis, and kidney affections.

The only means I have for arriving at any conclusions is from an empirical manner, as I have been able to derive very little information from any literature on the same. The water-supply in our wells is derived more or less from the Missouri River, and I imagine all is fairly similar in quality. We must have possibly as ingredients, besides the limestones, some magnesia and sodium. The water percolates through a soil quite rich in mineral salts of various kinds. To people who are unaccustomed to its use, drinking it in any quantity causes griping and diarrhea. Its constant use leads to a state of toleration. I have taken this water and boiled it down to one-fourth of the original quantity and had a water residue so very bitter it would be impossible to drink it at all. If, in addition to the irritant quality of some of the alkali salts to the intestinal tract, some was absorbed into the general system, we should have a water as a flushing agent reduced in potency. The principle would be the same as a sheet of blotting-paper already fairly well saturated with ink. Its usefulness would be partly destroyed.

The next general symptoms shown are those of an auto-intoxication. In too many instances has it occurred that the water-supply has been changed, and accordingly the person has been relieved from the symptoms of the same. The community has had during my time about eight cases of puerperal eclampsia.

As a consequence of the water not being very palatable, we have less water used for drinking purposes and a consequently higher specific gravity of urine. Our normal specific gravity here runs from 1030 to over 1040. Regardless of the fact that so much solids pass through the kidneys, our diseases from the same do not run as high as one would expect.

I have always felt that the water-supply was the cause of our great number of pyorrhea cases. The rigid connective-tissue structure of the gums appears to be a lodging-place for the products of katabolism or, possibly, for some of the salts of

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

the water. The gum-tissue either becomes dark and spongy looking as though there was a stasis in the blood-supply, or, if some care is taken of them, the margins retract away from the teeth. We have definite results happen to gum-tissue from lead and mercury, and, if such is the case, why should not the same thing happen from other agents. The pyorrhea, I believe, is a secondary process to the changes mentioned. We have people in this community whose teeth almost drop out as a result of this infection. These people all have a slightly anemic look. The fact remains that probably 50 per cent of our people have a pus focus continually present in the mouth.

Schamberg, in his book on skin diseases, makes the statement that in furunculosis of long standing we should look for dental abscesses. A recent English writer, Daniel, on arthritis, contends that many cases are due to oral sepsis. The same must be true of some cases of tonsillitis. It has impressed me that many cases of neuralgia could be traced to the same cause. Could it not be possible to have some of the various aches and pains ascribed to rheumatism and lumbago with pyorrhea as the starting-point. With the masticating of food some of this pus must be taken into the stomach, and with the favoring influence of water, why should not some forms of dyspepsia and gastritis be thus started, also some of our gall-bladder disorders?

We have in the intestinal tract a certain balance of power between the various bacterial growths; necessarily this equilibrium being changed by any irritation, the result will be a difference in the muscular tone and the membrane, also the process cannot help injuring the secretory glands, from which fermentations and constipation will be the final outcome. This makes the field fertile, especially for appendicitis. Dr. McMannus of Williston informs me that the cowboys who have been compelled to drink a great deal of alkali water are the victims of arteriosclerosis, myocarditis, and kidney diseases. At forty-five years of age the men have the appearance of sixty or more. I have noticed the same changes in individuals who show the effects of aging rapidly in five years' time.

Relative to goiter, Dr. McKee, resident physician on the Reservation, has informed me that fifty per cent of the Indian women have this trouble. It has impressed me that the goiter cases are in families situated near the river, and that the districts some distance from it are not affected. I mention this because of recent advancement on this subject.

A distilled water therefore containing no salts whatever would be best for the system, as the salts required are found in sufficient quantities in the food-supply. The U. S. Navy has been using distilled water on the battleships in recent years, and a marked improvement in the general health of the navy has followed.

In conclusion, I believe these two conditions, water-supply and pyorrhea, are the causes for many of the local conditions found, and that a radical change would curtail much of the surgery and work a wonderful change in the health of this community.

NOTE.—A recent U. S. bulletin makes the statement that Missouri river water has glauber and magnesium salts in varying quantities. The Dakota range of hills is the top of a watershed emptying into the river, and as this soil is rich in mineral salts it is natural that the water near the river is more impregnated with the various salts than that farther away.

DISCUSSION.

DR. R. H. BEEK (Lakota): The first thing that strikes me in this paper is the very high specific gravity of 1030 and 1040. It hardly seems possible to me, although it may be that such a high specific gravity could come from drinking water that was more than ordinarily impregnated with the earthy salts, and I would like to ask if the author has followed up the cases and found whether or not sugar has been present in the urine later on, more particulally in regard to pyorrhea. I think the doctor underestimates the number of people suffering from the disease rather than overestimates it. In the past two years I have paid particular attention to the subject because I have had a personal experience with it. During that time it has been my good fortune to be under the care of a man who has made a very great reputation in the care of that disease. Probably this disease may start, or can start from irritating substances, circulating in the blood, and it may be possible that the high earthy contents of the water of his home town are responsible for greater alkalinity of the blood and in that way causing irritation in the gum surface. We know, too, that in communities where there is a great deal of earthy salts in the water there is more of a tendency to formation of tartar around the gum surface. This results in irritation and inflammation of the gum membrane, and later on, as a result of that irritation you will get a bacterial infection. The point I wish to bring out is, that, under all circumstances, pyorrhea is bacterial in origin, and while I do not know that the specific germ has been absolutely worked out, still I do know that a short time ago a bacteriologist in Sweden was supposed to have discovered the germ of Rigg's disease, but whether or not that is so we do know that this disease ultimately is a bacterial disease.

The manifestation of the disease is, as the doctor has put it, first a bluish or a red discoloration of the gum, a

swelling and separation of the gum from the tooth surface, and with that separation a corresponding laceration. That, together with the blood poured out in minute quantities, affords the best place for the propagation of the germs, which are so effectual in destroying the structure around the teeth. With the destruction of tissue there is a corresponding ulceration, and a large ulcerated surface may result, from which there is absorption of bacterial poisons. There is also a greater or less amount of pus being swallowed. From either way we may have constitutional symptoms, or remote organs and structures may be diseased, although I think the absorption may be the means of causing the greater amount of trouble. In every case of obscure trouble the teeth should be thoroughly inspected, for there we may find the cause of disease in remote points, disease which will clear up to a greater or less extent after a competent dentist has attended to the mouth condition.

Dr. Ruediger (Grand Forks): I was somewhat interested in this paper because we have made many water analyses in connection with our survey of the waters of the state. I doubt whether all the conclusions drawn here are warranted. Just what the effect of these waters is upon the system is a subject that we know very little about. Unfortunately, we have not made a survey of the waters in the vicinity where the doctor lives, and, therefore, I do not know what their mineral contents are, but he talks about certain disorders being more prevalent along the Missouri River and apparently concludes (but I may have misunderstood him) that the waters of the Missouri River are at fault. As a matter of fact, the water of the Missouri River contains only about 20 grains per gallon of mineral matter, whereas the well-water in many parts of this state contain from 200 to 300 grains per gallon. If, therefore, the mineral matter has anything to do with these disorders, those drinking the Missouri River water should not be more affected than those drinking well-water. Moreover, there are plenty of other communities using Missouri River water, and the people there are apparently in perfect health.

There are, of course, plenty of waters in this state that are exceedingly irritating to the intestinal tract. When I came to North Dakota I did not know what these waters contained. I was led to believe that these so-called "alkali" waters actually had a high alkalinity and contained carbonates of sodium and potassium. I labored under the delusion for a year or more, but when we started to make a survey of the waters of the state I found that I was mistaken. In most communities the residents have designated certain wells as "alkali" and others as "good," and it was not an easy matter to find out what they meant by "alkali" water. We collected samples and made analyses and found that these so-called "alkali" waters contain a large amount of magnesium sulphate. On the other hand, we found many waters that were high in alkalinity, due to bicarbonate of soda, and the people using them did not consider them "alkali" waters. There are well-waters in this state containing in the neighborhood of 60 grains per gallon of bicarbonate of soda, and nobody particularly objects to drinking them. Sometimes they will say that this water has a "mineral" taste, but these are not the waters that act almost as knockout drops to the newcomer. The waters that have this effect are those which are rich in sulphate of magnesium, and sometimes those which are rich in sulphate of sodium.

It is frequently stated that these so-called "alkali" waters produce kidney disease and arteriosclerosis. In looking over the records of the vital statistics, we find, however, that kidney disease and arteriosclerosis are not very commonly put down as the direct or contributing cause of death. In fact, it is found that these diseases are mentioned from four to five times as frequently as the cause of death in the eastern states as they are in North Dakota. If, therefore, we draw conclusions from these data—and these are the only data we have—we can not conclude that our hard waters and those rich in mineral matter produce Bright's disease and arteriosclerosis.

These are exceedingly interesting problems, and I am glad indeed to have heard this paper. I have not paid any attention to pyorrhea, which the doctor says is the most prevalent disorder in his community. I do not know whether this disorder is ever caused by the drinking of these "alkali" waters. I wish to emphasize the point, however, that we can not conclude that certain disorders are caused by these waters simply because we find them in those drinking the water. In other communities we find that people are using very similar waters and are not afflicted with such ailments.

The question of goiter was touched upon. I have not had an opportunity to collect statistics, but it has been found in the girl's gymnasium at the University that goiter is quite prevalent among the girls in this state. It is frequently stated in text-books on hygiene that magnesia will cause goiters, and it is a fact that the waters of North Dakota contain a large amount of salts of magnesium. This problem needs, however, to be worked out before we can draw any conclusions. I seriously doubt whether the salts of magnesium are the cause of the goiters.

Dr. C. E. Spicer (Litchville): I would like to ask Dr. Ruediger a question in regard to the use of rain-water and the proper filter to be used to make it an agreeable and healthful drinking water. In many communities the water is so bad that it is impossible to drink it, and I notice they are using rain-water and filtering it through a brick filter. I would like to know if that is the proper method of filtering for preparing rain-water for drinking purposes.

Dr. Ruediger: We are not drinking rain-water at Grand Forks, but I have put in a cistern so that we can have soft water for washing purposes. There are two filters that you can use satisfactorily in getting rain-water. I mean both used together, not one or the other alone. We have a charcoal filter about fifteen inches in diameter and about twenty inches tall, which is attached to the outside of the house where the water spout comes down. The water spout passes through the center of this filter almost to the bottom. The lower end of the filter is funnel-shaped and has an opening with a screw cap. Just above the funneled portion is a screen and above this is a thick layer of charcoal. Near the top of the filter is another screen and above this is the outlet connecting the filter with the cistern. The water coming from the roof passes to the bottom of the filter and after filtering upward through the charcoal, it passes over into the cistern. The upward filtration removes practically all of the heavy dirt and sediment that is

collected from the roof. This is not a bacteriological filter, but you can build a bacteriological filter in your cistern if you desire to have it. I hardly believe that such a filter is necessary, because the roof is not likely to contain pathogenic bacteria. You can build a bacteriological filter in the bottom of your cistern by vaulting over a small space with a brick wall and allowing the cistern-pump to draw the water out of this space where the water can enter only after it has percolated through the brick wall. This filter removes practically all bacteria from the rain-water.

Dr. R. H. Ray (Essayist): The particular reason why I said something about goiter, was simply because in my section it was rather a prevalent condition. From observation it appears to me to follow the river, within a belt of, say, seven miles or so from the river. The Indians on the reservation get their drinking water from the river and Dr. McKee, the resident physician, tells me that 50 per cent of the women have this condition. I am making this statement relative to the river water in view of the new statement made as to the cause of goiter. We have some cases of exophthalmic goiter, and in my community three deaths have occurred during the past six years. We have, as well, some cases that look like a chronic form of this trouble.

Now, about the specific gravity of urine. I have lived there six or seven years, and this condition has occurred so often that I could hardly be mistaken about the sugar in the urine. I find that the average is apt to be 1030 and will run up as high as 1040, and apparently the individual is in good health. Some of our cases of pyorrhea might possibly be called stomatitis, the condition in the gums being so widespread and having symptoms of salivation, etc. Recently I have seen a child of 11 who has already lost her permanent teeth from pyorrhea. The conditions present here would look as though we had some definite cause which may be some particular element in our water supply.

A SIMPLE AND SAFE METHOD OF PREPARING CATGUT*

By. H. W. Barbour, M. D.

EDGELEY, N. D.

Catgut has always been looked upon as a hard material to sterilize, and with a great deal of doubt. Until recently most of the endorsed methods for its preparation were long, troublesome and next to impossible outside of a well-equipped laboratory. Long contact with ether or other chemicals to extract fat was considered necessary. In some methods the material is subjected to prolonged and high temperatures, which tend to render the gut brittle and to reduce its strength. The methods of sterilizing catgut have been simplified in the last few years. The Claudius iodine catgut is thoroughly reliable, and the technic in its preparation is as simple as it could be. Its main disadvantage is that the gut loses its strength and becomes rotten if left very long in the iodine solution in which it is stored. This disadvantage may be overcome by removing the catgut from the iodine on the eighth day and storing it dry in sterile jars; but when kept dry it does not handle so well and there is some danger of its becoming infected. It is a decided advantage to store catgut in some antiseptic solution after it is sterilized. About three years ago Dr. B. L. Meigs and myself, by combining points from the Ochsner and Claudius methods, produced a catgut, which is simple in preparation and which has proven itself reliable. The raw catgut is cut in 18-inch lengths. Each length is wound on a glass tube three-fourths inch in length. We get tubing that is used as water-gages in steam boilers, and have them cut up in proper lengths. The gut is so wound on this tubing that the first turns fasten each end of the ligature to prevent unwrapping. The winding should be done smoothly, not allowing one turn to overlap the other. It is next placed in a solution composed of 1 part of tinct. iodine in 15 parts of 90 per cent alcohol, where it remains for ten days. At the end of ten days it is placed in a 2 per cent watery solution of formalin for twenty-four hours to render it somewhat harder, after which it is stored in 95 per cent alcohol to which ½ grain of bichloride of mercury has been added for every ounce of alcohol. If desired it may be rinsed in sterile water before use. We have soaked coils of catgut in a bouillon culture of anthrax, placed them in iodine solution, and made cultures daily, and have found the gut sterile after the seventh day. We have not been able to detect any change in the catgut after it has been stored for six months.

It has given good satisfaction in general surgical work and for skin sutures.

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

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SEPTEMBER 15, 1913

MINNESOTA STATE MEDICAL ASSOCIATION

The Minnesota State Medical Association will hold its annual meeting in Minneapolis, October 2d and 3d. The House of Delegates will meet at the Hennepin County Medical Society Library rooms in the Donaldson Building, Nicollet Ave. and 7th St., on Wednesday afternoon at 2 o'clock.

The meeting of the Asociation will take place in the Masonic Temple, Room 19, a room which is said to be free from noise and large enough to accommodate the Association comfortably.

Papers by Dr. Geo. W. Crile, of Cleveland, and Dr. E. C. Rosenow, of Chicago, should attract a large gathering.

The program has been practically completed, and as one scans its make-up its virtues are apparent. The usual difficulty has occurred with the Program Committee in getting men interested in the program, and the usual difficulty will be encountered in seeing that the readers are on hand to present their papers. After the meeting of the American Medical Association, in Minneapolis in June, there is every reason to believe that medical interests have been stimulated, and the attendance at the State meeting will be a large one. The Entertainment Committee have evidently decided that a return to the old order of things has passed; and as no criticism can be made to a banquet, it has been decided that a banquet will occur at the Commercial Club in the large club-room on the evening of October 2d. The Committee would very much appreciate some word from the members who expect to be present as to whether they will be here on the night of the banquet. This is given under the auspices of the Hennepin County Medical Association, and nothing objectionable from any point of view will be presented,—simply a good feed and a good time.

The women of the Hennepin County Auxiliary, as will be seen below, are preparing a program for the entertainment of the visiting ladies, and if the work of the women's committee at the American Medical Association is any criterion, the lady visitors who come to Minneapolis next month will have an enjoyable outing.

THE JOURNAL-LANCET respectfully urges all members to be present on the opening day of the meeting in order to hear the address of the president, Dr. R. J. Hill. This address is usually the keynote of the medical society, and doubtless some interesting matter will be presented for future remembrance.

The following invitation should be called to the attention of the ladies:

AN INVITATION TO THE LADIES

The Woman's Auxiliary of the Hennepin County Medical Society, extends a most cordial invitation to the ladies accompaning the doctors to the State Medical Convention, to be held in Minneapolis Oct. 2d and 3d, 1913, to make the Hennepin County Medical Library (11th floor Donaldson Bldg.) their headquarters during their stay in Minneapolis.

The Auxiliary will give a luncheon and afternoon entertainment on Oct. 3d, and all ladies wishing to attend are asked to kindly register Oct. 2d at headquarters. They are also asked to kindly send an advance post-card of acceptance by Sept. 27th to Mrs. G. G. Eitel, Eitel Hospital, Minneapolis.

It is hoped there will be a large attendance, and the visiting ladies may be sure everything possible will be done to add to their comfort and give them a good time.

OPERATION WITHOUT SHOCK

There has been much said in the medical journals of late on the work reputed to have been done by Dr. George W. Crile and others from which Dr. Crile has devised a system of anesthesia in which the after-effects, particularly shock, are almost entirely eliminated. The editor has tried to find some literature on the subject which will give one an idea of the methods of Dr. Crile, and the *Journal of Surgery, Gynecology and Obstetrics,* for June, 1913, has an article which

has been abstracted for the *New York Medical Journal,* and gives Dr. Crile's work in some detail.

Dr. Crile employs the following technic in abdominal operations:

1. Excluding infancy, old age and depressed vitality, he first administers, as an average, $\frac{1}{6}$ grain of morphine, and $\frac{1}{150}$ grain of scopolamine one hour before operation.

2. If local anesthesia is employed, novocaine, in $\frac{1}{400}$ solution, is used by progressive local infiltration.

3. If inhalation anesthesia is employed, nitrous oxide, alone or with ether added, as required, is administered.

4. As soon as the patient is unconscious, infiltration, first of the skin and then of the subcutaneous tissue, with $\frac{1}{400}$ solution of novocaine, is made. In order to spread the novocaine, immediate local pressure with the hand is employed. Anesthesia is immediate. Incision through this anesthetized zone exposes the fascia. The fascia is then novocainized, subjected to pressure, and divided. This brings us to the remaining muscle or posterior sheath and to the peritoneum. These structures are then infiltrated with novocaine, subjected to pressure, and divided within the blocked zone. If blocking has been complete, upon opening the abdomen no increased intra-abdominal pressure will be found, no tendency to expulsion of the intestines, and no muscular rigidity.

5. The peritoneum is everted and infiltrated with a one-half per cent solution of quinine and urea hydrochloride, completely surrounding the line of proposed sutures, and momentary pressure is applied. This infiltration serves as a block, and as it lasts several days it should prevent or at least minimize the post-operative wound pain and the post-operative gas pains, and by so much minimize post-operative shock.

6. If there is no cancer or acute infection in the field of operation, the following regions may be blocked as completely and in the same manner as the abdominal wall, viz.: the meso-appendix, the base of the gall-bladder, the uterus, the broad and round ligaments, and any portion of the parietal peritoneum.

This seems to be the shortest and most concise explanation of Dr. Crile's methods, and, judging from the attention that the subject received at the International Congress in London last month, it seems quite likely that surgeons are considering it as a very decided advance in surgery.

THE INTERNATIONAL CONGRESS OF MEDICINE

The 17th International Congress of Medicine was opened on Wednesday, August 6th, by Prince Arthur Connaught in the presence of a most distinguished gathering of representatives of the medical profession from all parts of the world. The number of members was officially stated to be 7,400. Sir Edward Grey, who followed the Prince, offered the good wishes of his Majesty's government, and struck the note of the conference when he declared that science is in the true sense of the word international. That while it has its controversies they were not national controversies, that those who are worthy to pursue it are not separated in their work by political and national rivalries.

The delegates from the numerous countries were as usual represented in the Congress and addressed either the Congress as a whole or its various sections.

In the physiology section, President Edward Schafer moved a resolution which was submitted to every section and recorded the conviction that experiments on living animals have proved of the utmost service in the past and are indispensable to its future progress. This resolution will doubtless excite a good deal of discussion among antivaccinationists and antivivisectionists, but it shows the opinion of men who know what they are talking about, and that ignorant people who attempt to retard the progress of medicine will not make much stir in the world except to emphasize the fact that scientific investigators are better qualified to pass judgment on the problem of vivisection than are the few hysterical, sensational, and otherwise ignorant people.

The various sections which met took up their work with a vigor and interest that will do much to clear away the opposition to the medical profession, and there seemed to be a very large and vital interest in the matters pertaining to public health, the campaign against consumption and for infant welfare.

The health of school children was discussed in connection with the dental section, and with others who are concerned with the defects common in the growing child.

Sir Edward Ferrier, who is a man of international reputation and a man who has done wonders in the line of neuropathology, presided over the section of Diseases of the Nerves and Brain, and in his address he expressed the view that the progress in neuropathology had not been sur-

passed, if indeed equaled, by any other department of medical science. He further said that at the first London Congress they were still discussing the question of cerebral localization, and that now the principles of cerebral localization have been universally accepted, and that neuropathology has done much to prolong life and relieve suffering and the principles of its successful operation are daily being rendered more definite and precise. It is unfortunate that Dr. Ferrier's ideas could not have been known before the reorganization of the Minnesota Medical School. The abolition of the Department of Nervous Diseases might not have occurred.

Tropical medicine is coming more and more to the front and the number of scientists who have given their energies, have ventured into dangers, and have died in the investigation of diseases, have added wonderfully to the knowledge of disease.

The Americans were well represented in the Congress. Among them was Dr. Harvey Cushing, of Baltimore, who spoke on the re-alignments in greater medicine, their effect upon surgery, and the influence of surgery upon them. Dr. Adolph Meyer, also of Baltimore, described the psychiatric clinic, its aims and results.

Some very wonderful reports of cases were given in which Dr. Arthur Evans, of London, recorded a case of a woman of 43 in whom the larynx and a large portion of the gullet were removed for cancer four years ago. Sir William MacEwen reported the removal of the left lung from a patient eighteen years previously, who had recovered and was still living.

The construction of an artificial kidney, the transplanting of kidney, and the treatment of cancer by surgical incision and radium tubes were other strange and progressive evidences in surgery.

A letter from Dr. Leo Crafts, of this city, gives, in another column, a further account of the Congress.

"THE MODERN HOSPITAL"

The above is the name of a very attractive and ably edited new magazine, the first issue of which shows that it has a field,—indeed, a large one,—and that it can fill the field.

The "modern" hospital is not the elusive "average" hospital; in fact, it is a thing not often seen except in the hospital that will be finished or—shall we say?—begun tomorrow.

The new magazine is edited and published by men who know the full meaning of the task they have undertaken, and we venture the assertion it will do a work that needs to be done and is well worth doing.

Its editors are Drs. Henry M. Hurd, Baltimore; Frederick A. Washburn, Boston; Winford H. Smith, Baltimore; S. S. Goldwater, New York City; James G. Mumford, Clifton Springs, N. Y.; W. L. Babcock, Detroit; and John A Hornsby, Chicago.

The president of the publishing company is Dr. Otto F. Ball, Metropolitan Building, St. Louis, who is a veteran in medical publishing. Sample copies of the first issue can be had upon request from Dr. Ball.

CORRESPONDENCE

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE

Held at London, August 6 to 12, 1913

This great congress of medicine which has just concluded its meeting here in the world's mighty metropolis (London) was a gathering of surpassing interest both to the profession and the public. Here were gathered together 7,400 medical men from every nation on earth, the great, the near-great, and the rank and file of the profession keeping in touch with the forefront of progress.

Fifteen nations had organized general committees. These were from designated official languages, and the programs were printed daily in a book of about seventy-five pages, in English, French and German. The meeting places of most of the twenty-three different sections were near together in the various college buildings clustered about the great Royal Albert Hall, on the south side of Kensington Gardens.

The social side of life was not neglected, and, if possible, it was perhaps too elaborately provided for in lawn fetes, boating parties, garden parties, teas, receptions, banquets and excursions, so great in number and variety that at times in some of the sections the reader spoke mostly to empty benches. And yet the bond of acquaintance and fellowship thus established may possibly equal in value at times the more serious formal discussion.

While no startling discoveries or epoch-making research were announced, this great meeting still is fraught with much of import for the gen-

eral progress of medicine. More emphasis than ever was placed on the practical side, and the consideration of the great problems of control of disease factors will have far-reaching results, such as the resolution introduced at the session of the section on Forensic Medicine, calling for effective state investigations and control of syphilis, which the English government has been the first to take up, officially, as a result.

Another great problem given extended attention is the racial degenerating effects of alcohol; its effects more notably in the production of epilepsy in offspring and insanity in the individual and his offspring. In this connection, too, the great problem of the continually increasing ratio of insanity to population everywhere was attentively studied. Attention was called to the fact that pellagra is widespread and apparently increasing and its cause still undetermined. It was shown that leprosy is now a fairly readily curable disease. But very little has been added to our knowledge of the genesis of cancer, yet distinct advance in the curative application of radial agents to superficial and deeper growths, has been made, proving that they have taken their places as agents of great value and should be given more serious attention by the American Medical Association.

Tuberculosis received less consideration than was perhaps to have been expected, probably because its control is now so well recognized. The great rôle played by the multiglandular system and the internal secretions was clearly presented in a variety of papers, touching the development, the integrity and the disturbed and degenerative states of the organism, depending on their activities.

Psycho-analysis was set forth elaborately by one of its leading exponents, Professor Janet of Paris, and received support, criticism and ridicule in extended discussion.

A special feature of the meetings was the number and variety of the splendid clinics presented at the various great hospitals. The wealth of such material available in a city like London is illustrated by the great clinical demonstration given at the National Hospital on Friday afternoon, when the section on neuropathology were shown twenty-two cases of various forms of primary myopathy alone.

An amusing incident was a paper by Dr. Hardy on "Epidemics of Maniacs," in which he discussed various outbreaks of mental states like the dancing mania in the middle ages and then suddenly came to the militant suffragette movement in England, which he designated as of that type. The chairman of the section directed him to cut out all such references. Considerable excitement followed, and a vote finally directed that the paper be not printed.

Dr. Erlich bore with becoming modesty the honors for the creation of his remedy, salvarsan, which the great accumulated testimony of many observers proves to be of the most far-reaching value in the treatment of syphilitic conditions.

The London papers gave full and fine accounts of the meetings, not sensational, and evidently most of these secular reports were prepared by qualified medical men. This gave a popular interest and grasp of the work that must be of inestimable added value in lasting results to the world.

Great numbers of leading names in American medicine were present and suffered none in the work they presented in comparison with the best the old world had to offer.

When we pause to think of its significance, what a wonderful thing it is for these thousands of medical men to journey, largely at their own expense, five, ten, fifteen thousand miles to come together to discuss and study further and better means for promoting the well-being of the race. And although the discussions and papers may be given in Japanese, Hindoo, Russian, Italian, which you may not understand, there is enough in the tongue or tongues that you do, to fill you with food for thought. And there is an impression and an inspiration from sitting before and listening to such men as Babinski, Oppenheim, Janet, Horsley, Cushing and a host of others that must be lasting upon all who enjoyed the privilege. Leo M. Crafts, B. L., M. D.

London, Sept. 1, 1913.

"VITAL STATISTICS IN NORTH DAKOTA:" A REPLY

To the Editor:

In your issue of Sept. 1st appears a letter from Dr. F. R. Smyth, City Health Officer of Bismarck, North Dakota, headed "Vital Statistics in North Dakota." The genial doctor has apparently been "nursing his wrath to keep it warm" these many moons, for we find that he has been supplying the lay press of the state with matter of a similar nature for some time. Now that he has cast his net in the waters of professional journalism, aiming thereby to catch the membership of our State Association, who regu-

larly receive and read your valuable and interesting paper, his communication merits a respectful reply.

An analysis brings out prominently the following contentions:

I. The legislature of 1907 passed a model vital-statistics law.

II. The State Board of Health has been negligent in enforcing it, and, as a consequence, the public health has suffered thereby.

If the reader had no further data than that furnished by Dr. Smyth he might be justified in drawing similar conclusions. But, like the cowboy who was tried and cleared of the crime of horse-stealing of which he was accused, when asked by his lawyer afterwards, confidentially, if he didn't really steal the horse, replied: "Well, pard, I must own up I always thought I took that hoss, but after hearing you talk, I'll be blanked if I think I did." In other words, wait until you have heard the other side of the question. A half truth is a very flimsy fabric on which to place reliance.

The bill, as stated by the doctor, passed the legislature in 1907, but he failed to mention that the original draft carried with it an appropriation of $4,000 for putting it into effect. Further, that this appropriation was cut out by Dr. J. D. Taylor, senator from Grand Forks, who had the bill in charge, after a conference with Dr. F. R. Smyth, at that time a member of the Legislative Committee of the North Dakota Medical Association, the idea being that it would be better to get the model law without an appropriation than no law at all, and trust to future legislatures for a remedy. If anything further is necessary to freshen a hazy memory, I would respectfully refer you to the minutes of the North Dakota Medical Association for the year 1908, one year after the law went into effect. The Committee on Public Policy and Legislation, composed of Dr. F. R. Smyth, chairman, Dr. Chas. Maclachlan, and Dr. J. D. Taylor, reported as follows:

"Mr. President and Members of the House of Delegates of the North Dakota Medical Association: Your Committee on Public Policy and Legislation begs to report that the only legislation recommended by the committee during the past two years was a vital-statistics bill on the lines advised by the U. S. Bureau. This bill was passed by the Legislative Assembly and became a law, but without the necessary appropriation to make it effective. We would recommend that an effort be made to secure a sufficient appropriation at the coming session of the legislature."

The report, with the recommendation, was approved.

Sec. 2. of the Vital Statistic Act reads as follows: "The State Registrar may employ such clerical and other assistants as are necessary for the proper performance of the duties of the office and fix their compensation within the amount appropriated therefor by the legislature."

Every one conversant with the facts knows that there has been no appropriation made for this purpose since that time and that the law still lacks "the necessary appropriation to make it effective," just as much as when the above report was made. The matter was referred to the attorney-general who ruled, in accordance with court decisions, that the law was inoperable for lack of appropriation. The State Board of Health, however, decided after mature consideration to carry on an educative campaign and in the meantime to collect as full statistics as was consistent with the limited amount at their disposal, trusting to future legislatures to remedy the deficiency. They have succeeded so well that, with a reasonable appropriation for executive and clerical help, North Dakota could be made eligible for the "Registration Area" within six months.

He states that "Minnesota and Montana have the same law, but the authorities enforce it." Of course they do, and why wouldn't they when Minnesota appropriates $5,000 a year for that specific purpose and Montana nearly as much? These states have "the necessary appropriation to make it effective," and when North Dakota follows suit we can have as full and complete vital statistics as any state in the Union—and not until then, opinions to the contrary notwithstanding.

Then follows a table of comparative death-rates of six cities in each of those states from which the conclusion is drawn that public-health conditions in North Dakota are very far from being ideal. There is nothing so misleading as vital statistics unless they are carefully analyzed. It would be an easy matter to make another list of half a dozen cities showing a higher average death-rate than those in North Dakota, but this would only be meeting one argument by another equally fallacious, and would prove nothing. North Dakota, being a rural state, has few medical centers. These are, roughly speaking, located in its larger cities. Take Bismarck, for instance, "where in the past two years infantile mortality has been reduced 40 per cent," and where the total death-rate is quoted at 17.9 per

1,000 population. Being equipped with splendid hospitals and honored with scientific and progressive medical firms large numbers of patients come there for treatment from the surrounding country. Under these circumstances the death-rate is apparently high, but from no fault of the public-health authorities. These are sociological and economic conditions that are evolved through modern methods of doing things. Rochester, Minn., may be cited as another example. Here the death-rate is 39.4 per 1,000 population, but no one would think of saying that this was due to the inefficiency of the Minnesota State Board of Health. And yet this is the kind of argument that the health officer of Bismarck, North Dakota, is using.

His comparison of infantile-mortality rates are equally misleading. He has not taken into consideration the age-distribution of population. The director of the Census says: "No exact comparison for the various states can be made until the age-distribution of the population is available." North Dakota is a young state. It has nearly doubled its population in the past ten years. The average immigrant is young, strong, and healthy, and in the family-bearing period of life. This gives us a relatively greater proportion of infants, and hence a higher relative death-rate among these. But if we compare infantile mortality with the birth-rates or with the general population of the state, we find that they are exceptionally low, 96 per 1,000 births in the one case and 1.4 per 1,000 population in the other.

The closing paragraph of Dr. Smyth's letter hardly merits mention, but for fear that he might feel slighted, I shall quote from his own report on the International Congress on Hygiene and Demography held in Washington, D. C., last September, at which he was the official delegate from Bismarck, N. D.: "The only sanitary measure in which North Dakota appeared to lag behind the eastern states is in the collection of vital statistics." This last being admitted, we feel flattered at the frank admission.

In conclusion, we cannot help feeling that our good brother Smyth is in very much the same state of mind as that individual who was overheard saying: "Yes, I'm going home for lunch and if it ain't ready, I'll raise Cain, and if it is ready I won't eat a darned bite, anyway."

J. Grassick,
Executive Secretary of the North Dakota State Board of Health.

TO NORTH DAKOTA PHYSICIANS

To the Editor:

I wish to call the attention of the profession in North Dakota to a section of our Medical Practice Act with which many seem to be unfamiliar.

I receive a great many letters such as the following:

Dear Doctor:

Kindly inform me if Dr.———————— is registered, and has a license to practice medicine in this state.

Yours truly,

————————

Read carefully the following section of the Medical Practice Law of North Dakota, approved Feb. 27th, 1911, and you will find your question answered, or you will be able to learn from your county officer.

Sec. 12. Licenses to be recorded: Every person who shall receive a license from the State Board of Medical Examiners shall have it recorded immediately in the office of the recorder of deeds of the county in which he shall maintain an office for the practice of medicine, and shall likewise have it recorded in any county in which he shall practice medicine regularly. The recorder of deeds of each county in this state shall keep for public inspection, in a book provided for that purpose, a complete list and description of the licenses recorded by him. When any such license shall be presented to him for record he shall stamp or write upon the back thereof his signed memorandum of the date when such license was presented for record. If the name of any person shall not so appear in such book in any particular county in this state in connection with a description of such license provided for in this Act, such act shall be prima facie evidence in any civil or criminal action involving the practice of medicine by such person in such county, that such person does not possess in full force of virtue a license to practice medicine in this state.

The above is self-explanatory.

It might be well if men who received their licenses a number of years ago, would see that such licenses are properly recorded.

Yours truly,

G. M. Williamson,
Secretary, State Board Medical Examiners.

P. S.—I will thank the profession if they will send me the name and address of any person in the state whom they know to be practicing medicine without a license.

G. M. W.

Grand Forks, N. D.
Sept. 8, 1913.

MISCELLANY

PROGRAM OF THE MINNESOTA STATE MEDICAL ASSOCIATION

THURSDAY, OCTOBER 2d, 1913, 9:00 A. M.

1. President's Address, Dr. R. J. Hill, Minneapolis
2. Luetic Mediastinitis, Dr. H. Z. Giffin, Rochester
3. Experimental Data on Instramuscular Injections of Anti-syphilitic Drugs, Dr. H. E. Robertson, Minneapolis
4. Who Should Do Surgery? Dr. M. M. Ghent, St. Paul
   Discussion opened by Dr. E. M. Lundholm, St. Paul
5. Common Infections That Are Often Erroneously Diagnosed as Grip, Dr. C. L. Sherman, Luverne
6. Preparatory and Post-operative Treatment, Dr. F. J. Plondke, St. Paul
7. The Physician and Public Health Work, Dr. F. M. Smersh, Owatonna

THURSDAY, OCTOBER 2d, 1913, 2:00 P. M.

1. STUDIES ON ENDOCARDITIS AND RHEUMATISM
   1. The Etiology of Rheumatism and the Lesions of Experimental and Human "Rheumatic" Myositis.
   2. The Differences Between Streptococcus Viridans and Streptococcus Rheumaticus Endocarditis. Dr. E. C. Rosenow, Chicago, Ill.
2. Accident Neurosis, Dr. J. M. Lewis, Minneapolis
   Discussion opened by Dr. A. A. Law, Minneapolis
3. The Interrelations of High Blood-Pressure and Renal Disease, Dr. E. L. Tuohy, Duluth
   Discussion opened by Dr. Geo. Douglas, Minneapolis
4. The Relationship of the Symptoms and Pathology of Simple and Exophthalmic Goiter, Dr. L. B. Wilson, Rochester
5. The Importance of Orthopedic Treatment in Tuberculous Joints, based upon Twenty-seven Years Experience in Four Thousand and Ten Cases, Dr. A. J. Gillette, St. Paul
   Discussion opened by Dr. J. E. Moore, Minneapolis
6. The Clinical Aspects of Primary Diffuse Degeneration of the Spinal Cord, Dr. C. Eugene Riggs, St. Paul
   Discussion opened by Dr. C. L. Greene, St. Paul
7. The Dangers of Carbohydrate Over-feeding, with a Report of a Typical Case, Dr. Frederic W. Schlutz, Minneapolis

FRIDAY, OCTOBER 3d, 1913, 9:00 A. M.

1. Surgical Oration, Dr. Geo. W. Crile, Cleveland, Ohio
2. A Rubber Tube for a Common Bile-Duck, Dr. A. T. Mann, Minneapolis
3. Surgical Shock as a Factor in Obstetrical Operations, Dr. A. L. McDonald, Duluth
4. "Suspension Laryngoscopy," Being a Demonstration of Kilian's New Method of Direct Laryngoscopy, Dr. F. C. Todd, Minneapolis
5. Conservative Treatment of Nasal Sinus Disease, Dr. E. J. Brown, Minneapolis
6. Cervical Ribs as a Cause of Brachial Neuritis, Dr. A. S. Hamilton, Minneapolis
7. Surgical Aspect of Cervical Ribs, Dr. A. A. Law, Minneapolis
8. Demonstration of the Operation for Direct Transfusion of Blood, Dr. J. F. Corbett, Minneapolis

FRIDAY, OCTOBER 3d, 1913, 2:00 P. M.

CLINICS

1. Clinical Cases Illustrating Results of Different Incisions in Operations Upon the Face, Dr. J. Warren Little, Minneapolis
2. Presentation of Cases of Rare Dermatoses, Dr. John Butler, Minneapolis
3. The Operative Treatment of Fractures, Demonstrating the Use of Steel Plates for the Correction of Bad Fractures, Dr. A. E. Benjamin, Minneapolis
4. Open Treatment of Fractures and Cases of Plastic Surgery of the Skin, Dr. R. E. Farr, Minneapolis
5. A Case of Elephantiasis Lymphangitica, Dr. H. L. Staples, Minneapolis
6. Symptomatology of Certain Heart Lesions, Dr. S. Marx White, Minneapolis
7. Cases Illustrating Some Phases of Bone Disease, Dr. J. E. Moore, Minneapolis

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RESOLUTIONS BY THE ALIENISTS AND NEUROLOGISTS OF THE U. S. IN MEMORY OF DR. H. A. TOMLINSON

Whereas, By the death of our colleague, Dr. H. A. Tomlinson, of Willmar, Minn., this Association has lost one of its most active, valued, and honored members;

Resolved, That this Association deeply regrets Dr. Tomlinson's death; and

Resolved, That a copy of this resolution be spread upon our minutes and published in the Illinois and Minnesota State Medical Journals.

Theodore Diller, Pittsburg, Pa.
M. A. Bahr, Indianapolis, Ind.
Chas. Gorst, Mendota, Wis.
Henry A. Cotton, Trenton, N. J.
M. E. Witte, Clarinda, Ia.
G. M. Hill, Des Moines, Ia.

BOOK NOTICES

The Collected Works of K. G. Lennander. In three vols. Almquist & Wiksells: Upsala and Stockholm.

The late Professor Lennander of Upsala ranked with the first surgeons of our time; the study of his works is consequently instructive and stimulating in the highest degree. He was more familiar with American surgeons and their work, and more apt to appreciate them, than most Continental authors.

Lennander's most important discovery—for, in view of his careful observations and their scope, it may be

considered as such—is that the sense of touch, pain, and temperature is limited to certain well-defined organs, and is ever present in them to a variable degree. The skin is the most important in this regard, as it envelops the whole of the body and is, owing to its sensitiveness, a guard against all kinds of attacks from the outside. Under this protective cover we find several organs that have a modified tactile sense; thus the muscles and aponeuroses have a comparatively slight sense of pain; the serous and subserous membranes lining the great cavities have a decided sense of pain, and so have the periosteum and the synovial membranes of the joints. When these structures are stretched or displaced over the organs they cover, they give rise to great pain; and at the same time these organs seem to be without sensation for ordinary pressure and temperature. The structures enveloped by these coverings are entirely without the sense of touch, pain, and temperature. The blood-vessels are insensible, but the connective tissue surrounding them is highly sensitive. The sympathetic system is recognized by Lennander as entirely motor.

Formerly it was held that organs became sensitive during inflammation. This is a misconception. The tissues that are normally devoid of sensation do not acquire this quality by becoming inflamed; but connective tissues, such as periosteum, parietal peritoneum, etc., may become distended or stretched by inflammatory products. For instance, when a person suffers from colic, it is not the insensitive bowel that aches, but the posterior part of the parietal peritoneum, which is put on the stretch by the pull of the mesentery as the bowel contracts and stiffens to overcome a resistence.

It is evident that Lennander's discovery has great practical bearings both on diagnosis and the technic of anesthesia. For instance, in a case of metastatic osteitis (osteo myelitis) the infection is painless as long as it is confined to the marrow or the bone substance; it is only when the periosteum swells and tries to elevate itself from the bone by an underlying accumulation of lymph, blood, or pus that pains appear. In this way the nature of bony inflammation may be decided to the mutual benefit of patient and physician. The inflammation of the appendix, to name another instance, may be painless, if it is confined to the internal part of the organ. The pain at McBurney's point depends probably on the lymphangitis resulting from the inflammation and producing tension of the posterior parietal peritoneum.

Another important result of Lennander's teachings is the limitation in time and depth of the narcosis. There can be no doubt that a prolonged and deep narcosis is an additional danger, in operations, which we may largely avoid by using it only for manipulations of sensitive parts.

While this study of the limitation of the sensitive parts of the body is a real and valuable addition to our knowledge, it is by no means the only important part of this work. A splendid historical review of the antiseptic treatment, articles on skin-grafting, a study of a case of a medullary tumor, and many other interesting and instructive articles, make it a real mine of information.

A study of Lennander's work is equivalent to a surgical continuation-work, and cannot be sufficiently urged upon everybody who wishes to perfect his surgical education. —Hoegh.

NEWS ITEMS

Dr. I. W. Linson will take charge of the Cuyuna Hospital.

Dr. L. I. Aldrich, of Jeffers, has moved to Mason City, Iowa.

Dr. A. T. Floew, of Minnewaukon, N. D., has moved to Harvey, N. D.

Dr. W. D. Sheldon, of Minneapolis, has become a member of the Mayo Clinic staff.

Dr. Charles Goodheart, of Finley, N. D., was married last month to Miss Lovida Tufts, of Akeley.

Dr. Harlan P. Morrill, who practiced in Wahpeton and Forman, N. D., died last month in Oklahoma.

Dr. A. G. Anderson, of Hillsboro, N. D., has sold his practice and his interest in the hospital to his partner, Dr. F. D. Smith.

Rice Lake, Wis., is to have a hospital. It will be conducted by Miss Leo Sawyer, a graduate nurse of St. Luke's Hospital, St. Paul.

Dr. G. M. Sewall has moved from Cuyuna, Minn., to Granville, N. D., entering into partnership with Dr. J. S. Davies, of Granville.

Health Commissioner Lankester, of St. Paul, will ask the city to establish a depot for the distribution of certified milk to the sick poor of the city.

Dr. B. T. Williams, a cancer specialist of Minneapolis, who has been "curing" cancer without a license, was arrested last month, plead guilty and paid a fine of $50.

Dr. O. C. Wolner is doing special work in bone surgery at the State University under Dr. Corbett, and also acting as house surgeon at the Northwestern Hospital.

The Minneapolis Board of Education is planning to extend medical instruction to all pupils, thus increasing the cost of such instruction from $18,000 to $25,000 a year.

The nurses at all the Minnesota state hospitals have had their salaries increased five per cent. They now receive from $33 to $50 a month, supervisors receiving $75 a month.

The government printing offce has issued, in pamphlet form, Dr. Taliaferro Clark's report on trachoma in Minnesota, and copies of the report can be had upon application.

Dr. O. W. Fisher, of Watkins, was tried last month for practicing medicine without a license. That he had no license is a matter of record, and that he practiced medicine was well known, but the jury would not convict.

The child patients of the City Hospital of Minneapolis now enjoy a building for their exclusive use. The new building is at Chicago Avenue and Eighteenth Street, the property being a donation to the city by Mr. C. E. Lyman.

Dr. R. J. Morrisey and Dr. T. V. Walsh, of Watertown, S. D., will locate in Oakes, N. D., to practice under the firm name of Drs. Morrisey & Walsh. Dr. Morrisey has been doing post-graduate work in the East and is now in Oakes.

The announcement in our last issue that Dr. J. P. Schneider, of Green Isle, had located in Minneapolis, was premature. Dr. Schneider has gone to Vienna to spend several years in study, and will locate in Minneapolis when his studies abroad are finished.

Dr. E. H. Huenekins, secretary of the Hennepin County Medical Society, has gone to Europe to spend a year in the pediatric clinics of Berlin and Vienna. Dr. C. M. Brooks will serve as secretary of the Hennepin County Society during Dr. Huenekins' absence.

Duluth seems to be carrying on infant-welfare work more largely and more effectively than any other city in Minnesota. The weekly clinics for mothers are well attended and the visiting nurse is busy and efficient. The city buys certified milk at ten cents a quart, and sells it for seven cents a quart to those who cannot pay more.

Mr. Harold W. Slocumb, of New York, has been appointed secretary of the Anti-Tuberculosis Committee of the Associated Charities of Minneapolis, and the Committee will begin at once a vigorous campaign against tuberculosis. The plan is to unify nursing and dispensing facilities, to establish an "exhibit," to supervise city lodging-houses, to provide more open-air schools, to secure better legislation essential to the work and to obtain a county sanitarium.

PRACTICE FOR SALE

A $6,000 to $8,000 practice in a thriving modern North Dakota city of 1,800; railroad center and farming community. Price for quick sale the invoice of office equipment, about $800. Address R. O. N., care of this office.

POSITION WANTED BY NURSE

A registered nurse wants a position in a physician's office or as surgical assistant. Has a college education and possesses some knowledge of laboratory work; experienced. Address T. P., care of this office.

FOR SALE

An *x*-ray machine fully equipped for electrical and *x*-ray work. It cost about $1,000, and will be sold for $100, if taken at once; have an operating chair and an oak roll-top desk at a very low figure. Address Mrs. Mary H. McLean, Fergus Falls, Minn.

MINNEAPOLIS OFFICE FOR RENT

Dr. J. Clark Stewart offers his office in the Syndicate building for rent for a part of the day, hours to suit the tenant.

PRACTICE FOR SALE

I have a thoroughly established practice of between $6,000 and $7,000 in a fine southern Minnesota town, which I will give to the purchaser of my real estate at an investment valuation and on terms that any man can meet. The practice can be turned over to and held by my successor and easily increased. Address X. T., care of this office.

PRACTICE FOR SALE

In eastern North Dakota, unopposed $3,500 practice. Can be increased by doing surgery. In town of 500; good crops, and collections 95 per cent. Fine schools, churches, and lodges. Can give possession at once. Address A. T., care of this office.

PHYSICIAN WANTED

A general practitioner to look after my practice for one or two months in good country town of North Dakota. Must be ready to begin between Sept. 5 and Sept. 15. Will pay straight salary if wanted. State salary wanted. Address B. M. D., care of this office.

FINE OPENING FOR PHYSICIAN

A physician in town of 7,000 in Northern Minnesota who wishes to spend six or eight months in the East will rent his furnished office and equipment for that length of time beginning about Sept. 15. Practice is a general one and amounts to $6,000 a year, nearly entirely office and hospital work. May consider partnership later. Scandinavian preferred. Address J. M., care of this office.

OFFICE FOR RENT

Office for dentist or doctor in the Masonic Temple, Minneapolis, with reception-room in common with two physicians. Address or call at 504 Masonic Temple, Minneapolis.

UNUSUAL OPPORTUNITY IN MINNEAPOLIS

A live practice for sale by a doctor who gives it up to accept an appointment at the University of Minnesota. A practice of about $4,000 a year in a good residence district. A practice that can be taken over and held together by a competent man.

I will accept $400 cash and the balance, $100, as soon as buyer is satisfied with agreement. Address P. M., care of this office.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JUNE, 1913

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1													1		
Albert Lea	4,500	6,192	11	1	1	1					1							1
Alexandria	2,681	3,001	5						3									
Anoka	3,769	3,972	4	1														
Austin	5,474	6,960	6	1														
Barnesville	1,326	1,353	4		1	1												
Bemidji	2,183	5,099	4													2		
Benson	1,525	1,677	2												1			
Blue Earth	2,900	2,319	1									1						
Brainerd	7,524	8,526	5								1					1		
Breckenridge	1,282	1,840	3															1
Canby	1,100	1,528	2	1												1		
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	1															1
Chatfield	1,426	1,226	2													1		
Cloquet	3,074	7,031	5															
Crookston	5,359	7,559	7						2									
Dawson	962	1,318	2			1												
Detroit	2,060	2,807	2															
Duluth	52,968	78,466	80	13	2	6	2	1	2						3	3		8
East Grand Forks	2,077	2,533	2	1														1
Ely	3,572	3,572	1															
Eveleth	2,752	7,036	8	2				2			1					1	1	
Fairmont	3,440	2,958	0															
Faribault	7,868	9,001	5	1	1													1
Fergus Falls	6,072	6,887	11	1	1		1									1		1
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	2	1														
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	3															
Hutchinson	2,495	2,368	1															
International Falls		1,487	4															1
Jordan	1,270	1,151	*															
Lake City	3,142	3,142	4												1	1		
Le Sueur	1,937	1,755	2															1
Little Falls	5,774	6,078	4											1			1	2
Luverne	2,223	2,540	5	1		1												1
Madison	1,336	1,811	2															
Mankato	10,559	10,365	14													2		
Marshall	2,088	2,152	0															
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	293	26	10	16	2	1			1	1		1	5	28	1	27
Montevideo	2,146	3,056	4			2										1		
Montgomery	979	1,267	1															
Moorhead	3,730	4,840	9	1				1								1		1
Morris	1,934	1,685	1															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	9	1												1		
Northfield	3,210	3,215	6	1														1
Ortonville	1,247	1,774	4						1									1
Owatonna	5,561	5,658	3													1		
Pipestone	2,536	2,475	3		1													
Red Lake Falls	1,666	1,666	1													1		
Red Wing	7,525	9,048	8		1										1	2		
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	*															
Rochester	6,843	7,844	25	1	1	2										10		1
Rushford	1,100	1,011	2															
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	15	1		1	1								1	1		2
St. James	2,102	2,102	2															
St. Paul	163,632	214,744	198	23	6	8	4	3			2			1	5	17	2	9
St. Peter	4,302	4,176	5													1		
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	2															
Sleepy Eye	2,046	2,247	3													1		
South St. Paul	2,322	4,510	8													2		1
Staples	1,504	2,558	*															
Stillwater	12,318	10,198	10						1					1			1	
Thief River Falls	1,819	3,174	4						1									1
Tower	1,111	1,111	*															
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	4															
Virginia	2,962	10,473	16			3			1						4			
Wabasha	2,622	2,622	1													1		
Warren	1,276	1,613	3	1	1													
Waseca	3,103	3,054	5	1										1		1		1
Waterville	1,260	1,273	3	2														
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	7	2														1
Winona	19,714	18,583	25	3		1									2	2		2
Winthrop	813	1,043	*															
Worthington	2,386	2,385	0															

REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,638	1	1														
Akeley			0															
Appleton	1,184	1,221	3		1													
Belle Plaine	1,121	1,204	*															
Biwabik		1,690	0															
Bovey		1,377	2													1		
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	3	1														
Cass Lake	546	2,011	2			1												
Chisholm		7,684	3												1			
Coleraine		1,613	1															
Delano	967	1,031	0															
Farmington	733	1,024	1															
Fosston	864	1,055	0															
Frazee	1,000	1,645	1															
Grand Rapids	1,428	2,239	3													1		
Hibbing	2,481	8,832	14	2		1		1										2
Jackson	1,756	1,907	0															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	3	1												1		
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	1															
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	2															
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	0															
Nashwauk		2,080	1															1
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	*															
Osakis	917	1,013	*															
Park Rapids	1,313	1,850	0															
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	2															
Pine City	993	1,258	1															
Plainview	1,038	1,175	0															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	2						1									
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	0															
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	3															
Wadena	1,520	1,820	1															
Wells	2,017	1,755	1															
West Minneapolis	2,250	3,022	1															
Wheaton	1,132	1,300	2			1					1							
White Bear Lake	1,288	1,505	2															1
Windom	1,944	1,749	0															
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	3			1												
STATE INSTITUTIONS																		
Anoka, Asylum			3	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			8	6														1
Fergus Falls, Hospital for Insane			13	5	1	1												
Hastings, Asylum			2	1														
Minneapolis, Soldiers' Home			3													1		1
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			6	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			10	2	1													
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1															
OTHER PARTS OF STATE			702	57	20	26	2	5	12	1	5	1		2	33	52	2	84
Total for state			1713	165	49	74	12	14	24	1	12	3		7	57	141	8	157

*No repor received. Registrar not doing his duty.

119 stillbirths not included in above totals.

Nourishment—
Minimum Waste

These are disease-conditions wherein loss of tissue (and its attendant impairment of vital energy) makes it imperative that speedy and efficient nourishment be supplied, in order that the metabolic balance may be turned in favor of the patient.

The logical and ideal means of bringing about such an issue is food, which, while supplying the needed nourishment, is particularly easily digestible and contains a minimum of waste material to be separated from true nourishment by the already weakened digestive organs.

Grape-Nuts

and cream, in such proportion as the attending physician finds indicated to supply the element of fat, seems fully to meet above ideal requirements, as has been attested by thousands of physicians for a decade or more.

Made of selected whole wheat and malted barley, Grape-Nuts contains all the food material of these nutritious cereals—including the phosphates usually lacking in ordinary bread made from white flour.

The processes of manufacturing this famous food insure perfect baking and full sterilization. The starches are broken down and in large measure converted into dextrin and dextrose (soluble carbohydrates) for easy and prompt assimilation.

There is little waste in Grape-Nuts—the food being absorbed in about ONE HOUR after ingestion. The firm, hard granules entail deliberate mastication, and the results are reliable as has been established for many years.

Samples sent on request, to any physician who is desirous of making original or confirmative experiments.

Also the *Clinical Record,* for physician's bedside use, will be mailed to those who have not already received it.

POSTUM CEREAL CO., LTD., BATTLE CREEK, MICH., U. S. A.

PUBLISHER'S DEPARTMENT

DR. J. B. MURPHY'S PROTOCLYSIS OUTFIT

Our readers will be interested in the announcement made on another page by Messrs. Sharp & Smith, of Chicago, who offer Dr. Murphy's protoclysis outfit, complete, for $3.50. This outfit finds a large field of usefulness in the work of the general practitioner, and its price is exceedingly moderate.

A DISTINGUISHED HONOR

Congressman Herman A. Metz, of the 10th New York District, president of the Farbwerke-Hoechst Company, importers of salvarsan, neosalvarsan, novocain, etc., has been designated by the Democratic party for controller of the City of New York. He served in this position with the greatest credit to himself from 1906 to 1910, and during that period he placed the finances of the city upon a firm foundation.

ARMOUR GETS GOLD MEDAL

The International Congress of Medicine held at the University of London gave the gold medal, the only award in this class, for Digestive Ferments to Armour and Company, Chicago. This is another high acknowledgment of the pre-eminent quality of Armour's Pepsin and Pancreatin.

Superiority in Armour's Pepsin and Pancreatin is easily explained. An abundance of raw material, proximity to abattoirs, experts in the manufacturing departments and independent analysts to test the finished preparations make a combination that furnishes products which appeal to those demanding the best.

SNOOK-ROENTGEN X-RAY OUTFIT

The *x*-ray has become indispensable in any hospital and in the work of any man who attempts to do surgery, but its usefulness has been too much limited by inferior apparatus which, like a poor automobile, will give its possessor so much grief that he puts it on the scrap heap.

Mr. Snook invented the interrupterless apparatus and at once put an end to coil troubles and increased the usefulness of *x*-ray work.

Mr. Snook still gives his personal attention to the manufacture of *x*-ray outfits, and this is a guarantee that no inferior outfit will be sent out by his company.

Messrs. Noyes Bros. & Cutler, of St. Paul, will be pleased to give our readers full information in regard to the Snook-Roentgen apparatus.

AN ETHICAL ASTHMA POWDER

Dr. Harrah has put up for the convenience of the profession an asthma powder in three-ounce bottles, which is very effectual for the paroxysms of asthma. Almost from ancient times, paroxysms of asthma have been treated by the inhalation of medicinal substances.

Dr. Harrah's powder is composed of stramonium and potassii nitrites, with aromatics added to make it more agreeable. It contains no opium or any of its derivatives and no cocaine. It is better for one who has to have relief to take this medicine by inhalation than to use the habit-forming remedies. It has been suggested (Dr. E. L. Smith in Medical Record, June 29, 1907) that some of the good effects of the inhalation of nitre and stramonium are due to the vasoconstriction caused by the irritation of the fumes in the asthmatogenic areas, these being mostly in the nostrils.

The action is more prompt than morphine or cocaine, and the after-effects more pleasant.

THE RIVER PINES SANATORIUM

Except in somewhat rare cases, it is no longer considered necessary or good practice to send tuberculous patients away from home for a change of climate unless conditions would demand a change in the case of a well person. One who is in good or bad health may be benefited by coming from a debilitating warm climate to the Northwest, but the tuberculous patients of the Northwest should stay here. The only reason why a tuberculosis patient should leave home is the need of sanatorium treatment; so we say to the Northwestern or the Southern person with this disease, incipient or considerably advanced, seek out such an institution as the River Pines Sanatorium at Stevens Point, Wis., with ideal health surroundings and able management. Here your chances for complete recovery are all climatic conditions and sanatorium and scientific medical treatment can offer.

Dr. Thos. H. Hay, the director of River Pines, invites correspondence from physicians with cases needing sanatorium treatment.

AUTUMNAL AILMENTS

The autumn months constitute the season during which the average practicing physician is called upon to treat the following conditions: 1. Typhoid fever, which is, more often than not, contracted at some unhygienic summer-resort. The patient may return home during the first week or so, with headache, malaise, etc., or the premonitory or primary symptoms may appear after reaching home. 2. Malarial infection, in certain sections, which is more than usually rife in the fall seasons. 3. The after-results of the gastro-intestinal disorders of infants and young children, due to improper feeding, etc., during the heated term.

In almost every instance, when the acute symptoms have subsided, a condition of anemia and general devitalization is the final result that constitutes the essential indication for treatment. In convalescence from all forms of illness resulting in general debility, Pepto-Mangan (Gude) is the one ideal tonic and reconstructive. It not only revitalizes the blood, but also tones up every physiologic function. It stimulates the appetite, improves the absorptive capacity, increases energy and ambition and restores the blood to its normal condition. It is, thus, a general tonic and reconstituent of marked and certain value.

THE
JOURNAL-LANCET

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DEMONSTRATION OF THE ANATOMIC TREATMENT OF FRACTURES OF THE FEMORAL NECK*

By C. E. Ruth, M.D.
DES MOINES, IOWA

You are probably aware that practically one-sixth of all fractures are of the femoral neck, and that one-third of all fractures in the aged are of the femoral neck. This statement is sufficient to indicate the importance at least of the subject under consideration. If I were to call your attention to the fact that, in almost every community of any considerable age or size, there are one or more individuals who are cripples as a result of this injury, those of you who have been long in practice will bear out the truth of this statement, which implies that, to the present time, there has not been at our command a satisfactory or successful treatment of this condition.

Twenty-three years ago nearly, I first listened to a lecture by the late Dr. T. J. Maxwell, then professor of anatomy in the College of Physicians and Surgeons of Keokuk, Iowa, in which he took up the subject of femoral-neck fractures quite exhaustively, together with the supposed causes of failure to get satisfactory results by the treatment then generally advocated. It was generally denied at that time that we could obtain, except on rare occasions, good bony union after injuries of this class, and Maxwell gave his idea of the reason for failure. His reasoning appealed to me as rational, particularly inasmuch as we failed to recognize all of the elements of the displacing force that tended to prevent approximation of the fragments and maintaining them in adjustment. Believing him to be right, I championed his cause until now, I am glad to say, "anatomic method" stands out as the method *par excellence* for treating fractures of the neck of the femur.

We must bear in mind that in fractures of the femur we have the upper fragment absolutely neutral, no muscular fibers or muscles being in any way attached to it; that a greater number of powerful muscles pass over the fracture-line than in any other fracture we have to treat; and that the muscular-power element enters largely into the case. Then we must bear in mind still another fact, which I shall demonstrate, namely, that some of these muscles are changed in their action as soon as the fracture occurs. The psoas and iliacus, which are normally internal rotators or in some rare cases remain neutral, immediately when a fracture of the femoral neck occurs become powerful external rotators. The rectus femori, the sartorious, the gracilis, the tensor vaginæ femoris, the long head of the biceps, the semitendinosus and vertical parts of the abductor magnus—all act in a compound way, namely, vertically or longitudinally and parallel with the body; but the combined action of the gluteal and abductor groups is oblique, not vertical, not internal, and so we have another force to consider, an oblique force, as well as a longitudinal force. Then you have the obturators externus and internus, gemelli, pyriformis and quadratus femoris exerting a pull which is directly transverse. You say they are rotators, too? I am not objecting to that. I grant it, but I want you to remember that they act at right angles, hence we have three lines of combined ac-

*Presented at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

tions which we must oppose and continue to oppose every minute from the time we suppose we have set our fracture until sufficient time has elapsed to secure union.

Now, there are some elements that enter into a case of this class and the principal one that I want to consider just now is the capsular ligament. The capsular ligament is never completely severed in fractures of the femoral neck, but the anterior portion, including the Y ligament, of which this is largely composed, is powerful and always holds.

Fig. 1.

I wish to call your attention to another fact that is largely overlooked by anatomists, namely, that passing from the inner side of the capsular ligament to various points on the neck of the femur there are little outshoots or vinculæ, which give the capsular ligament a controlling attachment to all parts of the neck of the femur. In other words, if you have a solution of continuity of the neck of the femur in which there are two fragments you need not expect but that there will be attachments to the fragments by vinculæ from the inside of the capsular ligament, provided you have not used inordinate force in the diagnostic manipulation of the case and torn the vinculæ or capsule much more than they were as a result of the injury. I bring this to your minds because I want you to understand that just as soon as we bring the remnants of the capsular ligament into normal position by making traction in line with the normal position of the neck of the femur, the remnants of the capsular ligament will cause alignment of the fragments, just like a close-fitting sleeve, and the capsular ligament will align and maintain the position of the fragments so long as proper traction is maintained in that line.

Fig. 2.

I have rather a poor wet specimen here which I will show to you in illustration of this point. (Exhibits specimen.) The two fragments into which this femoral neck is broken, I will displace as much as I can. Now, if I make traction in

line with the normal position of the neck of the femur (there is only about half of this capsular ligament remaining in this specimen), the fragments will be seen to line up at once. I may displace the fragments as much as I can, but just as soon as I start my pull I straighten them out in line with the normal neck of the femur; they will be in correct position, and they will remain so. Remember what I said about the action of the neck of the femur in relation to the psoas and iliacus I indicated to you a few minutes ago. I made the statement that the psoas and iliacus are normally internal rotators, and I can very well prove it by this specimen. The reason they are internal rotators is that the point of resistance

Fig. 3.

(the femoral head) is internal to the line of action of these muscles. The friction, you see, is a little strong so I cannot show it with this specimen quite as well as if it were lubricated thoroughly. However, if you can get a subject fresh from the dead-house and will pick up the psoas and iliacus and put your finger beneath them and pull strongly, you will find that the toes will be rotated inwardly. Bearing this point in mind I now want to show you what happens when a fracture of the neck of the femur occurs, and I shall use these artificial muscles to illustrate the point. (See Fig. 1.) Now, just as soon as I let go of the femur you see sudden extreme external rotation takes place because of this action of the psoas and iliacus.

I want to call your attention here to another point, namely, the tendency of the psoas and iliacus, as soon as the fracture occurs, not only to rotate the foot outward (very few of these cases have impaction), but to force the soft parts between the fragments. (See Figs. 1 and 2.) The capsular ligament would of course come first between the fragments, because it rests in direct contact with the fracture-line and thus becomes at once a complete obstacle to approximation and the securing of bony union. So we have, then, muscular action oblique, vertical, and transverse; and now that we have the demonstration subject in the dorsal decubitus we shall use this illustration to show you what happens in a case of

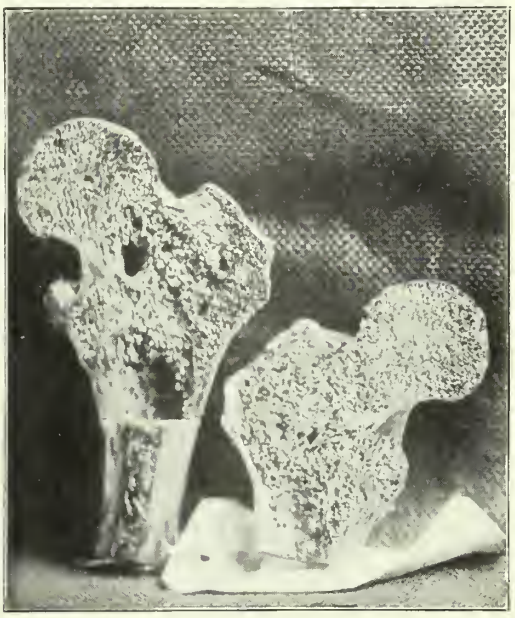


Fig. 4.

fracture. (Demonstration of the method of application in live subject.)

If we let this represent the head of the femur, the femoral neck runs so (indicating the direction), and if you have a longitudinal pull as an ordinary Buck's extension, we shall overcome the action of the muscles acting vertically, but it will be noticed in the examination of a case of true fracture that, when you have put on enough longitudinal pull to get the legs of equal length, the hip will remain flat, and the trochanter on the injured side will not be as prominent as the one on the other side and will be behind the normal position. I do not care whether your solution of continuity goes through the narrow part of the neck, or whether it goes into the trochanter,

or whether it comes up to the trochanter, the treatment in either case is equally applicable, the diagnosis is made in the same way, and the results are equally good. I know of no cases that I would rather treat, or in which I have a more confident expectation of securing satisfactory results, than cases of fracture of the neck of the femur, because we are able to secure a normal position of the trochanters by combining two forces until we overcome all muscular action in every direction, and by a proper adjustment between the longitudinal and lateral pull we can obtain a resultant whose line of action is through and parallel with the neck of the femur. We thus overcome the transverse, oblique, and longitudinal displacing forces. We have not, however, provided for the displacing influence of the weight of the limb, which is not an unimportant

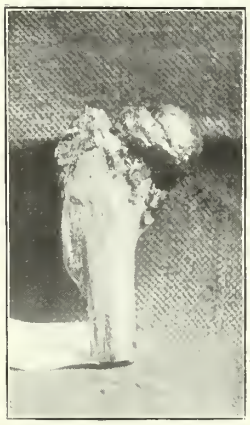


Fig. 5.

Fig. 6.

factor, particularly in some old woman who has regular Hottentot buttocks, giving enormous weight, but not a very heavy muscular development. The displacing influence of the weight of the upper end of the lower fragment is overcome by the lateral traction being directed upward and forward and of sufficient force to make the trochanter major as prominent on the injured side as on the sound side and to place it also on the same level as the corresponding trochanter.

I now pass around the specimens I have here, and you can look at them while I proceed with the adjustment of the treatment. I shall try to bring out the practical points as they present themselves in the application of the treatment, and then try to give you an abundance of time to ask questions that I hope will complete your understanding of the matter.

Now, I said I came in contact with the knowledge of this method of treatment through Dr. Maxwell. I frequently heard Dr. Maxwell's discussion of the method, and I always gave him credit for the authorship of the same. Imagine my surprise last October when I saw an article by Dr. Gwilym Davis, of Philadelphia, in the *Annals of Surgery*, in which he quoted from Dr. Maxwell and myself, but said that Phillips was the author of the method. His colleague, Dr. Ashhurst, corroborated his statement. I looked the matter up carefully and found these men were right, that one George W. Phillips, of Dixon, Ill., in 1867 treated the first case by essentially this method and illustrated the same by a woodcut in an article published in the *American Journal of Medical Sciences* in 1869. Dr. Maxwell had his first case in 1871 and published his first article in 1876, and in that article, over his own signature, he acknowledged the method was not original with him. I have a copy of both these articles in my possession and know that these statements are true.

This first bone specimen (Figs. 3 and 4) that I now pass to you is taken from a case treated by Dr. Maxwell, a man 72 years of age when the accident happened. He had a resulting permanent eversion of this foot. He lived twenty years after the fracture occurred. When I first presented this matter to the American Medical Association, in 1901, this was the only specimen I had, and my friend, Dr. W. W. Grant, of Denver, said that the result was too good to be true, that the bone had never been broken, and that Dr. Maxwell had gotten the wrong bone.

This next specimen (Fig. 5) is taken from a woman 78 years old. She was treated by Drs. O. D. Walker and J. H. Coulter. She lived eight years after the injury and did the work of a farmer's wife, at times cooking for eleven persons. There was no impairment of function. I suppose there was probably a little limitation of range of movement, but so far as strength and usefulness or pain was concerned, she knew no discomfort whatever from any of these. These bone specimens have done a lot of missionary work. They are quite old and have been roughly handled. I have varnished them over to arrest the process of disintegration.

This specimen (Figs. 6 and 7) was that of a man 70 years of age, who had softening of the brain, from which he had suffered for a considerable length of time before sustaining a fracture, as indicated by these lines that I have

gouged out somewhat. This man went without treatment for a week, and then Dr. Maxwell put on the longitudinal and lateral extension, and union was secured at the end of four weeks. Dr. Maxwell and I measured the limbs carefully and could find no difference whatever in length, and the man could voluntarily rotate the limb, and only because of his enfeebled mental condition did we leave any apparatus on after this time, and then just enough to keep him under restraint. He suddenly died of cerebral softening at this time. The interesting point is, had this man lived a year nobody could have told that he had sustained a fracture of the femoral neck.

Dr. Armentrout, of Keokuk, got the specimen while I was away from home. This is one that I also treated myself. (See Fig. 9.) This woman was 71 years old. In this case it was impossible for the students at the college where I was then teaching surgery to determine which leg had sustained the injury. There was very slight eversion in this case, but so far as the shortening was concerned it was practically nothing. I shall have occasion shortly to show you somewhat more about the avoidance of that eversion than I myself knew at the time that I was preparing and collecting these specimens.

I have a couple more specimens which to me

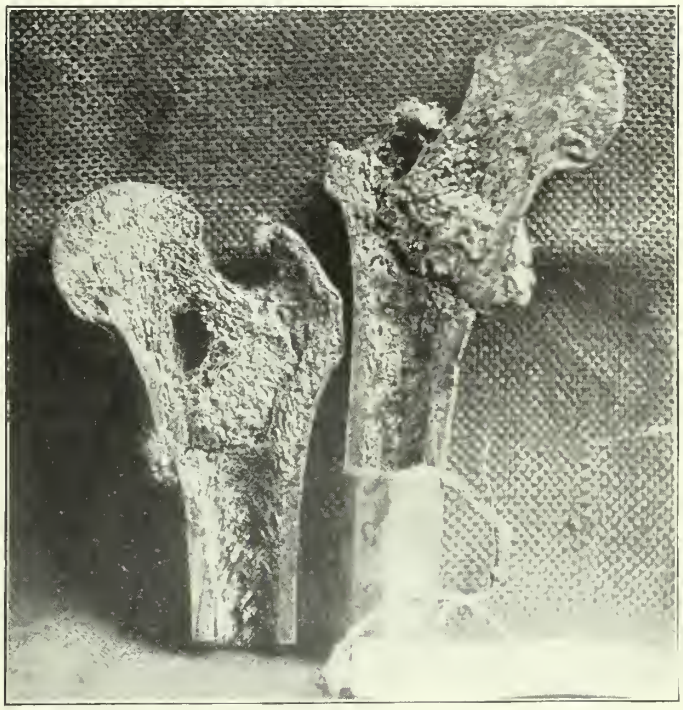


Fig. 7.

Some of my colleagues told me that these specimens were too good to be true, and that I, too, had gotten the wrong bone, so I took to getting them in pairs. This specimen (Fig. 8) is from a woman 70 years old. She had eversion. I never thought I was quite as skillful in the application of this method as Dr. Maxwell. He seemed to get better results than I was able to get; and if I was able to get good results, I was unable to obtain the resultant specimen, but I was very well satisfied with this one. The woman limped a little. She lived some six or eight years afterwards, I do not remember how long. Possibly, I have it stated here on the tag. My old assistant,

are of considerable interest, though they may not to your minds be very creditable, yet they both show a secure union. This specimen (Figs. 10 and 11) is from a woman 74 years of age, who had sustained, some eight years previously, a rupture of the internal lateral ligament of the other knee, and had since kept that leg flexed at right angles, so that I had no guide to determine when I had a sufficient amount of extension force on the fractured limb to pull it down as far as it was supposed to go. This specimen also shows something else of importance. While we have here a fracture tearing off a considerable portion of the attachment of the outer part of the

ligament, it also takes off nearly the whole of the greater and all of the lesser trochanter, extending the fracture downward, thus making a secondary fracture extending four inches down the shaft. The injury was due to a fall on the floor. The result obtained here is of particular interest to me because, if we undertake to treat a case of this kind according to the method of Whitman, which is particularly applicable to young children, we shall simply widen the breach between the fragments. This case died at the end of three months from malarial fever.

This last specimen is one I secured from an old pupil of mine, and you might think it a bad result, yet I do not, considering the circumstances. We have the neck of the femur broken behind, right at the junction with the shaft, and then we have the fracture extending down the shaft for a distance of practically four inches, and a separate fragment is broken off entirely, including the lesser trochanter and all the principal part of the great trochanter, including the attachment of the Y ligament. The same objections would hold in this specimen to the application of the Whitman method, as I mentioned in the previous case. This case was diagnosed as a typical fracture of the neck of the femur and was treated by the "anatomic method."

Now that I have things arranged, let me call your attention to the application of the "anatomic method."

You will notice the position of the bed with the foot and side corresponding to the injury raised so we may use the body-weight as a counter-extension through the tendency of the patient to work towards the head and slip towards the lower side of the bed. (See Fig. 12.) The tendency of the patient to slip towards the head of the bed is overcome by the weight at the foot, and the tendency of the patient to slip towards the lower side is overcome by the lateral traction. There is nothing important in the longitudinal extension further than you are already pretty familiar with in the application of the ordinary Buck's extension. On account of the prolonged traction it becomes imperative, however, that we get the most extensive area possible for traction, and it is essential to have our adhesive plasters go on perfectly smooth. In putting on the bandage I said we are extremely careful to be sure that there is no wrinkling or folding of the adhesive plaster anywhere. Neither am I satisfied with just two strips, one on either side, but I prefer to have three pieces of adhesive plaster on either side. I will explain my reason for this. You see I am going clear up, taking in the entire thigh. I said

Fig. 8.

I preferred to have three strips on each side. Starting at the malleolus, one strip goes up the side, another goes spirally around the limb, starting towards the front, and the other goes towards the back, all having their connection at the malleolus below. There should be no adhesive plaster that goes directly around the limb at any one point.

A roller-bandage is now run snugly over the adhesive. Now that we have put on the longitudinal extension, some are asking how much weight should be placed on that extension. I say with a man of this size from 20 to 25 pounds, and 30 pounds for a vigorous man of 180 pounds. Do not be afraid of getting too much adhesive surface. At first we used the extension only below the knee, and we found it irritated the skin. The pull was a little too heavy for the area of traction surface. Then we found in some cases we had ankylosis of the knee from extension alone without flexion.

Now as to diagnosis: First, be sure of your diagnosis. In an aged individual with a history of a fall or blow on the hip the patient is found helpless with eversion of the foot and shortening, and the picture is almost complete of cervical neck fracture. Grasping the great trochanter and rotating the femur, the trochanter will not describe the segment of a circle whose diameter is represented by double the length of the neck of the femur, but it will rotate practically in the position in which you grasped it. If no fracture exists the rotation of the shaft must cause the trochanter to describe the segment of a circle whose radius is represented by the projection inward of the head of the femur beyond a line with the shaft. Now, then, another point. We called to your mind the tendency of these muscles, the psoas and iliacus, to force soft parts between the fragments when a fracture occurs. I showed you the relation of the muscles also to the capsular ligament in the normal extension of the leg. Now, suppose I flex the thigh upon the trunk so it stands at right angles with the trunk, what is the line of action of these muscles? Now, with the femur at right angles with the trunk the psoas and iliacus are clear up out of the way so that they cannot produce any pressure tending to carry anything between the fragments. (See Fig. 13.)

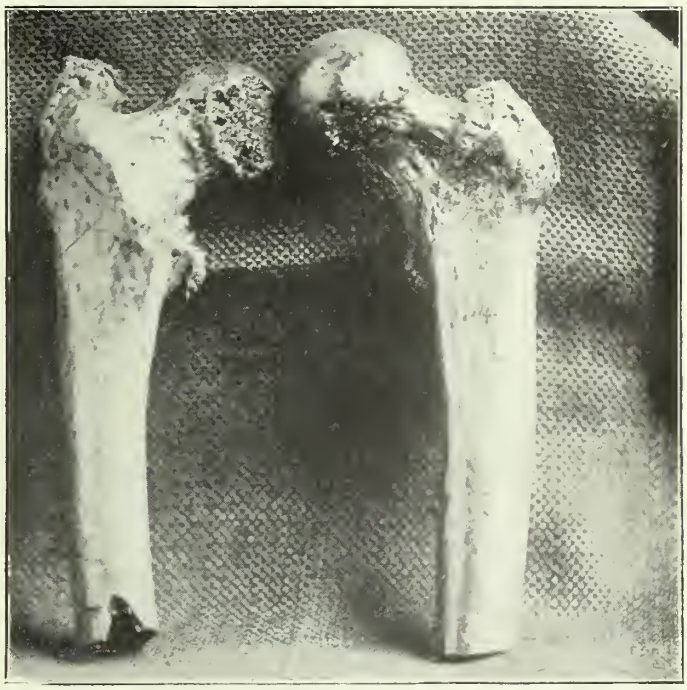


Fig. 9.

Now, as to treatment: Have everything ready so that when you have made your reduction there is no let up in the pull from that time on. In reduction, first flex the thigh upon the abdomen and make traction upward, and immediately the psoas and iliacus are up out of the way so they are not making any pressure at all to carry soft parts between the fragments. An assistant now

grasps the upper end of the thigh and pulls directly outward while you make traction downward as you extend the thigh, and you maintain that traction while your assistant maintains the lateral pull until you have the apparatus adjusted with 20 to 30 pounds longitudinal pull with usually about two-thirds as much traction-weight on the side. Another word about that longitudinal extension. I have given you pounds, but I want you to forget the number right off. Put on enough weight to do the business. What do I mean by that? Simply to have the legs of equal length, that is all. How much should you put on the side traction? Usually it requires about two-thirds the amount of lateral that it requires on the longitudinal pull. To do what? To overcome all deformity, that is all; to make the trochanter on the injured side just as prominent as it is on the other; to see that the trochanter comes forward to a corresponding level and that it is no longer dropping behind the normal position. One thing more, and that is, the lateral pull must be so applied that there is no longer any tendency to eversion of the foot. I showed you in some of the specimens that we had a permanent eversion resulting. Those specimens stand there as silent witnesses to the fact that there was some defect in the management of those cases. There is no need of a pronounced eversion. I was a good while finding this out, but I found it out at last. I shall explain the remedy for this eversion in just a moment.

Just a little item right here. In arranging for your lateral pull, do not use an ordinary sheet or bandage, because it tends to fold up like a cord and to cut in a little while, but take a piece of binder's-board four inches wide and a piece of cotton and cover one side of the board with a nice pad, making sure the pad comes up over the upper edge of the board because you are going to put the same up close to the perineum and you do not want to chafe the parts. Also note that you want the binder's-board long enough to reach two-thirds of the way around the thigh. It wants to be padded on the inner side, and the padding is to come over the upper edge. Adhesive plaster is to encircle the upper thigh, passing over the binder's-board and allowed to become adherent throughout. One-third of the thigh, you see, is not enveloped or surrounded by the binder's-board, and here the adhesive plaster is adherent to the skin. Now put another piece of adhesive plaster around the binder's-board to serve as the lateral traction-loop. When

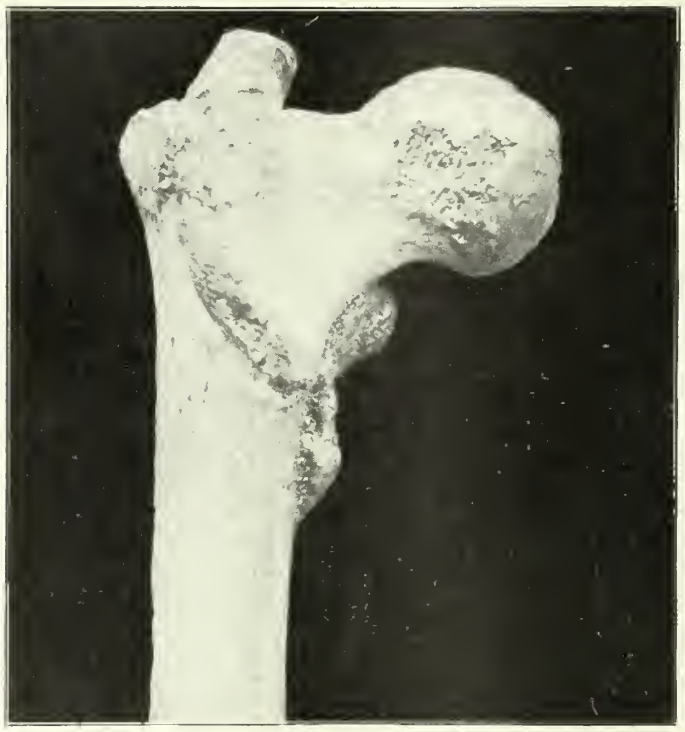


Fig. 10.

this is done you have complete control of the tendency to inversion or eversion. All that is needed to regulate the matter of inversion or eversion is to adjust the traction more or less on the lower end of the spreader. I use a spreader as wide as the thigh to prevent compression of the long saphenous. Failure to observe this precaution has caused needless edema of the limb in some cases. Thus we overcome all hindrance to the return circulation. In some very feeble people I found edema developed, and it can be prevented by the use of the spreader.

I spoke of the tendency that we found in some cases to produce ankylosis of the knee. After prolonged extension there is some little pain on bending the knee, and these elderly people do not fancy pain more than some of the younger ones, and hence they will leave the knee stiff long after you thought they were using it right along. Occasionally permanent ankylosis of the knee has resulted. That is very easily prevented by engaging the patient's attention while you slip the hand under the knee and, by elevating it, flex the knee ten degrees and then let it go. A repetition of this act at each visit will prevent ankylosis. You say that you will disturb the fragments? Get away from that idea. Remember what I said, the upper fragment is absolutely neutral, and it will move and maintain relations perfectly with the distal part so long as you maintain a suitable longitudinal and lateral traction in the application of the treatment and the overcoming of deformity and obtaining proper prominence of the great trochanter on the injured side.

Another thing some of you have been considering, namely, what about the patients attending to the calls of nature? All that is necessary is to flex the sound leg and thigh completely; then the patient can raise the hips from the bed by pressure of the sound foot upon the bed, and the urinal or bed-pan can be slipped under him without any trouble. Do not forget that you can raise the patients to a sitting posture. The old and feeble should be raised every day, not only once, but some of them ought to come up two or three or even four times a day, and certainly once a day you will raise every such case for cleansing purposes and massage of the back. Disturb the fragments? No, it will not interfere with the repair in the least so long as you maintain the traction as we have indicated.

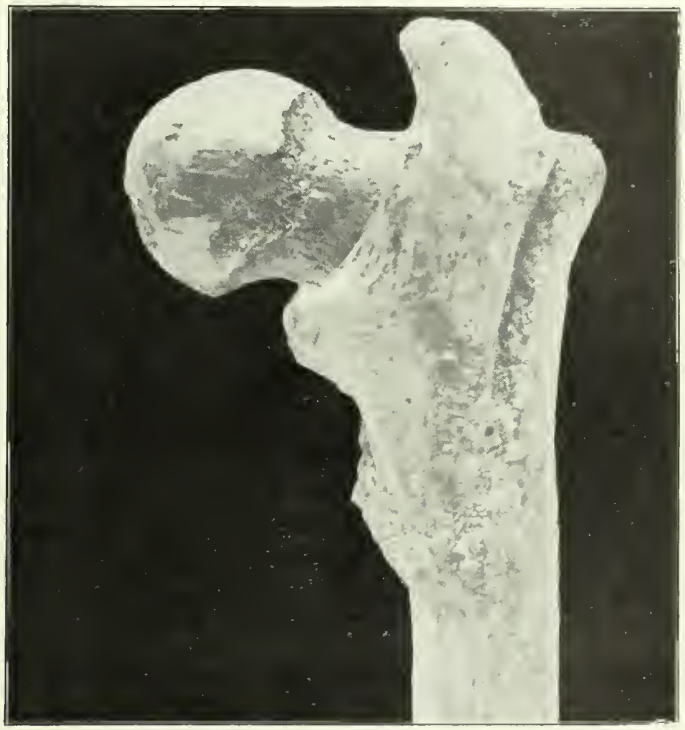


Fig. 11.

I have reports on considerably over 200 cases. They have become so numerous I have ceased keeping track of them The first time I presented this subject before the American Medical Association, Dr. A. J. Ochsner was then

chairman of the Surgical Section, and after we had had rather a warm time about the subject this distinguished gentleman said to the Section: "If Dr. Ruth is right, and I believe he is, this is worth more than all the rest of the work of the session." Since that time he has been using the method and with the same results that I have had. The report that he made some five or six years ago exactly corresponds with my own findings. Dr. J. E. Moore, of Minneapolis, is a very ardent follower of the method and reports some very excellent results.

In regard to how late after the injury occurs that successful results can be accomplished with this method, I would say that in my own experience I had only one case that went two weeks without treatment. That was when I was in Porto Rico, and it was in a case of an old and feeble Spaniard, but I got a very nice result in his case, although he had angina pectoris, which put him to the bad several times. He made a good recovery, and we had about three-quarters of an inch shortening. About fifteen months afterwards the same patient was out in the street and got knocked down and run over, and sustained a fracture of the other femoral neck. He did not wait two weeks to give me a chance this time. The only trouble was in the second case too good a result was obtained as there was no shortening, leaving his legs of unequal length. A former student of mine, Dr. S. D. Calonge, of Nampa, Idaho, writes me that he secured union in a case that had previously gone seven weeks without successful treatment.

While I may have forgotten some things in my desire not to detain you too long, if there are any questions you want to ask, feel perfectly free to ask them, and I will answer them if I can.

One thing more: Do not fail to put a spreader below the foot so that no pressure can be produced by the adhesive straps upon the malleolus, and adjust a pillow under the leg so that no weight is borne upon the heel.

Dr. Cuthbert: The pulley for the side weight —is it intentional that you have the arm to which the lateral pulley is attached, as far anterior as it is, or would it be all right to have it more to the head of the bed?

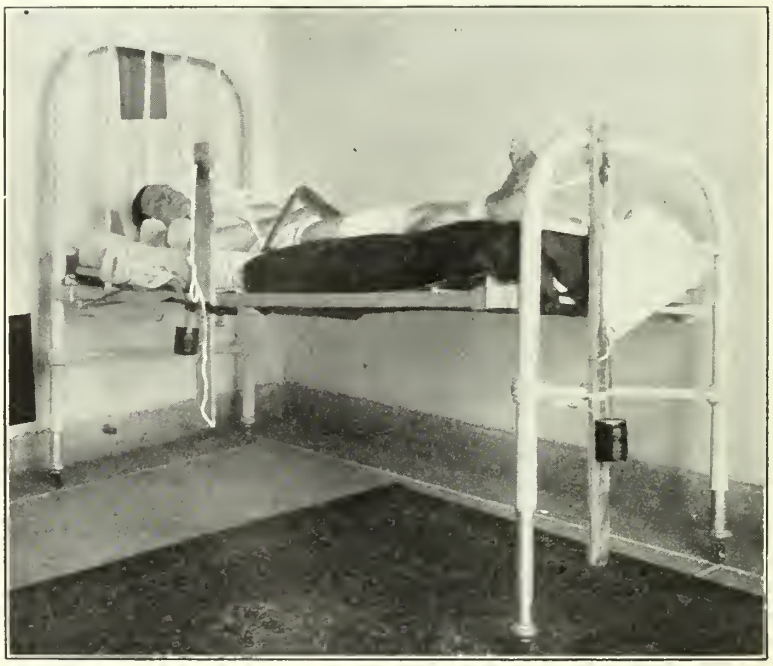


Fig. 12.

Dr. Ruth: Usually, I aim to have it about even with the highest point of the iliac crest so the pull is upward and outward and forward, and making a pull in that direction we overcome the tendency to eversion and dropping of the upper end of the lower fragment behind its proper level. By these means we get a resultant by the traction whose line will fall through the neck of the femur. This is a little far up in this case, but I was not able to estimate the length of our patient because he was not here or I would have put it a little differently.

Dr. A. J. McCannel: In case of an impacted fracture, how would you treat it?

Dr. Ruth: If there was much deformity or much eversion I would break it loose and then treat it as though it had not been impacted; otherwise I would leave it alone without giving it any treatment at all if the position was good. The only trouble about that is this: After a few days of constant muscular action, they very often loosen up and if you knew that was going to happen it would be your duty to put the apparatus on at first. I have had only one such case, but if the position was fairly good I would not disturb the fragments.

Fig. 13.

Dr. Ray: How long does it take before you get a union?

Dr. Ruth: I should have told you that I have never failed to secure a union if the patient had the vitality to live four weeks, though I have heard of one failure in over 200 cases. That generally beats our record on fractures of the femur in other parts, but in all cases I have treated or seen we have had union in four weeks, although I have kept the apparatus on for six weeks, but after the first ten days the weights are gradually reduced so that at the end of four weeks there is little more weight than just enough for its restraining influence to keep the patient reasonably quiet and make him feel he is still under treatment, so that he is not likely to put any strain on it because we know the union is not strong at that time.

Dr. Ewing: Is there any treatment after they get up?

Dr. Ruth: Only just care to avoid accident for a time. Usually, they are gotten out at the end of six weeks on a chair and then on crutches.

There is one thing I think I mentioned in my remarks: So far as the report has been made in the text-books the cases are misleading, due to a rather complicated plan that Dr. Fowler advised and which was copied by Keen in his "System of Surgery," and in those texts the description of the method was rather vague, so it was not possible for many to understand it well.

DISCUSSION

Dr. G. M. Williamson (Grand Forks): This has been a very practical and interesting demonstration of what can be done with one, or what I had considered one, of the most difficult fractures with which we have to deal. After listening to the demonstration by Dr. Ruth, it appears to be one of the very simplest fractures there is to handle. His method makes what I have always considered a difficult fracture to keep in place a comparatively easy one.

Fracture of the neck of the femur is common in old people and has always been a source of worry to me treated by the methods we have been accustomed to use, but Dr. Ruth's method of treatment removes the difficulties we have had to contend with, and the patient's position can be changed, the bed made more comfortable, and the nursing of the patient much easier.

Dr. Ruth, in his remarks, makes no distinction between intracapsular and extracapsular fractures. He says he gets good results in all fractures of the neck of the femur. Many authors claim that the results of intracapsular fractures are uniformly bad, on account of the limited blood supply to the upper fragment, and that what blood this fragment receives from the round ligament is not sufficient to nourish the bone and little, if any, callus is thrown out, consequently repair is slow and union faulty. I would like Dr. Ruth to explain that point more fully.

He prefixed his remarks with the statement that, usually, a patient who has had a fracture of the neck of the femur is more or less a cripple for the remaining years of his life if treated by other methods. The specimens of fractures he exhibits that were treated by the method explained to us this afternoon, show results that are truly remarkable, with no deformity, and apparently there could have been no shortening. This method is much superior to any with which I am familiar, and his demonstration of applying the same is very simple.

Dr. James P. Aylen (Fargo): I do not want to discuss this subject really from the point of the demonstrator, because I was not here at the time that the demonstration was made. I have missed a part of the lecture, but it has been a very interesting one to me from the fact that, as chief surgeon for the Northern

Pacific Railroad, we have had a great number of these cases. I don't know exactly the technic of the doctor in connection with these cases, but merely from looking at his plans I get the gist of the subject.

Dr. Williamson has said that these cases are intracapsular fractures, and nearly always are a hopeless proposition. I must differ with Dr. Williamson to some extent, but we know that the nutrition is very meager in these cases, and it is always a very difficult matter to diagnose an intracapsular or extracapsular fracture of the femur without the assistance of a radiograph, and the prognosis is much less formidable than Dr. Williamson would like us to imagine. I have seen a number of cases of intracapsular fractures of the femur where we have had admirable bony union, though it has not been perfect. Of course, we do not expect a perfect union in these cases without operative procedure. I have operated on quite a number of cases. I have pegged them and performed several other operations, but, in regard to these intracapsular operations, though the text-books of Simpson, Scudder, and numerous other authors have given us a formidable prognosis, I am inclined to think that is exaggerated. I have seen bony union in a number of cases, and I have seen useful joints in numerous other cases, and I do not think that they can be classified as really a permanent injury. I can show you cases in nearly every city in the state and can verify my assertion not only by my personal experience, but by the experience of surgeons connected with the Northern Pacific Railroad, who have seen numerous cases where they have had not a permanent injury, but a very useful joint. I can realize that the doctor's suggestions along this line of treatment are very apt. The majority of men fail to realize the muscular actions that we have to do with in these fractures. Now, anybody with a reasonable knowledge of anatomy can understand that the doctor is correct in this instance. I do not wish to criticize his method of procedure. What I wish to take exception to, more or less, is the prognosis. I think that his methods are admirable, and they are such as I have followed myself to some extent, and will follow to a greater degree in the future, owing to his suggestion.

Dr. R. H. Beek (Lakota): Personally, I consider it a great privilege to have heard Dr. Ruth, having known him by reputation, and having known of his method, although I have not practiced it. I think it was very fortunate we were able to secure him to give the demonstration here today, and if Dr. Aylen had only been here and seen the specimens, he would not have been so willing to disagree with the prognosis. It is quite surprising, even in a comparatively limited practice, and one not strictly surgical, the number of fractures of the neck of the femur that one will run across. In our small town there have been four. I have treated two, and two occurred while I was away this winter. One was a very elderly woman and was untreated; and one was sent to Grand Forks. The two that I took care of were treated by the same method, extension and counter-extension and a modified Thomas hip-splint. I was fortunate in each instance to have a trained nurse, so that the treatment was comparatively easy; at the same time when I hear of Dr. Ruth's getting a patient up in six weeks after intracapsular fracture of the femoral neck, it takes the breath out of one who has kept them in bed twelve weeks. I am glad to listen to Dr. Ruth, and assure him it is a great privilege.

Dr. Ridgeway (Annandale, Minn.): I have come a little over 400 miles, and I think I am very well paid for my trip by this demonstration. I have had in the last year two elderly women, one about 70 and the other almost that age, who sustained a fracture of the neck of the femur; and I followed this treatment and am glad to say I got perfect results in both cases, with no limp, and I can recommend it. I have had in the last twenty years a number of fractures with unsatisfactory results, but these have been good, and I am more than pleased to hear Dr. Ruth mention Dr. J. E. Moore, because I was down to the University Hospital a few weeks ago, and he showed me his cases, and his results were very much better than he acquired before he used this method, and he is a man of great experience.

Dr. Aylen: I do not want to mislead anybody as to my position regarding these cases. You know Simpson and Skudder have both said that there are hundreds of cases that have been diagnosed as pelvic strain and hip strain, and numerous other things, and have been finally diagnosed as intracapsular fracture of the femur. If that is the case, we cannot take cognizance of any case that has not been diagnosed really by a skiagraph. You have all had cases that have given symptoms that led you to believe them fractures of the femur. I have had some very lately in connection with the Northern Pacific Railroad where they were very suspicious, and they have not been verified.

Now, the average surgeon is apt to be more mislead on an intracapsular fracture than on any other fracture that I know of in the whole category of fractures. As Simpson says, there are cases that have gone about for weeks, and others have had to go to bed; and some of them have had shortening and some have not. In the treatment of these cases I cannot criticize the paper, but I want to call attention to the fact that there are many cases that we let go around without any attention at all, and they get well without permanent disability. These are not diagnosed till recovery has been fully established.

Dr. Ruth (closing the discussion): I am very much gratified to hear the discussion with reference to the demonstration because I know what I have told you is true. I am not here giving you an experiment. This method has been so thoroughly tried out that I can state, without hesitation, that you will not have one failure in 200 cases if the patients have the vitality to live four weeks after the injury. I do not mean the union will be strong, but you will get union in that length of time.

In regard to the apparatus: It does not take more than fifty cents to a dollar to furnish it. I have heard the statement that it is complicated. As some text-books have illustrated it, it is complicated, but in reality, you see, it is very simple in application. You do not need a whole lot of especially prepared apparatus. Out in the country a long way I have made my pulleys out of spools and got just as good results as with any other sort of appliance.

In regard to the side splint, and the authorship of this method: I want to say that Dr. Phillips did not abandon the use of the side splint, but Dr. Maxwell

did. Dr. Phillips used the essentials of the principle to overcome the muscular action in all directions. He had no arrangement to overcome the tendency to posterior displacement that we have, or to overcome the tendency to eversion. He undertook to correct that in another way. Maxwell used sand-bags to steady the limb. Neither he nor I learned, until recent years, to use the binder's-board securely attached to the thigh in such a manner as to get perfect control of the tendency to eversion.

In this presentation I did not attempt any diagnostic differentiation between extra-capsular and intra-capsular fractures. I do not care what the theory is as to the difficulty in securing sufficient blood supply. We know they do unite, no matter where the fracture occurs.

I pointed out the fact that we have vinculæ passing from the inside of the capsular ligament to the neck of the femur in numerous places. I mentioned the fact also that when you make traction in line with the neck of the femur you make the capsular ligament act as a close-fitting sleeve to line up and maintain the position of the fragments. Do not forget this fact, that while there are not numerous or large, there are small, blood-vessels that pass along with the vinculæ, as well as those that enter through the round ligament and nourish the head and neck of the femur. You are familiar with the fact that we may remove the head of the femur and in its place plant the great trochanter on the stump of the neck of the femur where it acts as a scaffold and helps to build a new head.

When facts confront us, our beautiful theories must go, and we must submit to the light of the facts, whether we like to or not. It is a mighty good thing to have an *x*-ray of your case if you can, and while I would *x*-ray every one of my cases if I could, I was compelled in the majority of them to give treatment just where I found them. They would not tolerate transportation, so we had to deal with them the best we could with the conditions and appliances at hand.

As to diagnosis: While we are not able without the *x*-ray to dagnose the exact place or spot within a quarter or half an inch that solution of continuity took place, in every case that is not impacted we can be absolutely sure that we have a fracture. In non-impacted fracture we have complete eversion of the foot and helplessness, and if an inch or two inches shortening exists there cannot be any question of diagnosis. We do not have to go farther, you do not have to take the rotation test that I have spoken of to make sure that you have a solution of continuity.

Dr. Aylen: Suppose you have half an inch or an inch shortening.

Dr. Ruth: But still with no false point of motion, the same law holds, but if you have the slight shortening and nothing else, you have a case of impaction.

Dr. Aylen: It might hold still.

Dr. Ruth: Yes, you would leave it alone. Where there is no deformity there is nothing to do. You probably would not get any better results than simply to leave it as it is. I do not mean to minimize that fact. You know that this injury is sufficiently grave that it does call for treatment in all non-impacted cases, and that is one reason why, in all cases, but especially in the old, we should utilize a method that will place all the displacing influences at rest and permit of an adjustment that will maintain this relation by constant traction that is free from pain. *That freedom from pain is the nice part of it.* My friend Dr. Grant, who was so bitterly opposed to this method for so many years and said it could not be true, for the results that we showed him in a few bone specimens we had were too good to be believed, wrote me after I had gone to Porto Rico and said: "I have just finished treating a case by your method, and I am delighted beyond anything I can express. The patient was absolutely free of pain from the time we got the apparatus adjusted." That is the experience practically of all after, at least, the first twenty-four hours, and I only felt sorry for Dr. Grant that it was not possible to convince him several years before.

I want to thank you again for your kind attention to the demonstration. (Applause.)

AN UNPUBLISHED 1884 PAPER ON THE TREATMENT OF FRACTURE OF THE HUMERUS*

By Frank Burton, M. D.

MINNEAPOLIS.

Fracture of the humerus is by no means an uncommon accident, nor is it of a particularly complicated nature. Hence it may seem strange to some that I should choose its treatment as a subject for our consideration tonight; but, inasmuch as the treatment of fractures constitutes one of the commonest duties of a surgeon, anything pertaining to their proper management must be of interest to us all, and it should be our aim in every case to secure and adopt that mode of treatment which will assure to our patient the best possible result and reflect the most credit upon us as surgeons.

Fractures of the humerus form about one-seventh of all the fractures that occur, and it is a fact that non-union is more frequently found in this bone than in any other. We meet with fractures of the humerus at various points throughout its extent, but we shall consider more especially one occurring at the "surgical neck," or that portion of the bone between the tuberosities and the insertions of the pectoralis

*This paper was read before the Society of Physicians and Surgeons, Minneapolis, April 9th, 1884.

major, teres major, and latissimus dorsi muscles, for it is at this point that a fracture most often occurs and is also attended by considerable deformity. These facts lead me to speak of the surgical neck alone, excluding breaks in other situations which are accompanied by little or no displacement. In this fracture, as in all others, the extent of the malposition depends somewhat upon the direction of the break, as well as upon the force applied; and as fractures of the humerus are generally the result of indirect violence, the displacement may sometimes be considerable. Gross mentions a specimen in the

museum of the University of Pennsylvania wherein the lower fragment of the shaft had united to the corocoid process of the scapula. However, I believe the main factor in producing deformity in all fractures is muscular action, for we find that in fractures occurring in paralyzed limbs there is no displacement except that which is produced by force; so also in situations remote from large muscles there is little, but in a location like the one under consideration where there are several powerful muscles attached, if the normal resistence offered by the bone be removed by fracture, the most movable fragment is at once drawn out of position.

Before we proceed to the treatment, then, let us glance for a moment at the nature of this injury and consider the forces whose effect we have to overcome. In the first place, we find the upper fragment being controlled by the muscles attached to the tuberosities, viz., the supraspinatus, infraspinatus, subscapularis, and teres minor rotated slightly outward and tilted a little upwards and forwards, but the long tendon of the biceps passes over the head of the bone in such a manner as to prevent much alteration in the position of this part. The displacement is principally confined to the lower fragment, the upper end of which is drawn inwards by the sternal fibers of the pectoralis major and the latissimus dorsi and teres major muscles, while the deltoid, coracobrachialis biceps, triceps, and the clavicular fibers of the pectoralis major contracting draw the lower fragment upwards, and if the line of fracture be oblique the sharp, jagged end of the bone may be felt almost puncturing the skin in the axilla. The elbow is at the same time thrown out from the side of the body, so that the axis of the shaft is entirely altered. The muscular action then, being the main cause of the deformity and shortening, it becomes important that we should bear this fact in mind when proceeding to the treatment of this injury. Now, the whole secret of success in the treatment of fractures consists in placing the ends of the bone in perfect apposition and keeping them fixed while union is taking place; and the result will depend largely upon the exactness with which this is done, for we have always the tonic contractions of the muscles to overcome, and, if the fragments are not perfectly approximated, there is added to this a spasmodic action due to irritation of the adjacent soft parts.

I do not propose to discuss the various methods used in the treatment of this fracture as outlined in the text-books, such as the axillary pad used as a fulcrum for prying the fragments into place, the gutta percha or leather cap placed over the shoulder with a view to preventing movement of the scapula, etc. I believe pads and compresses should, if possible, be avoided in the treatment of all fractures, as they do no good that cannot be effected by other means, and often occasion serious mischief. Everything should be avoided which interferes with the circulation; also the seat of fracture should, as far as possible, be left open to inspection, as to cover up a broken bone with splints and bandages is a great mistake.

I believe that there is but one principle to be applied in the treatment of all fractures of the

long bones where there is overlapping of the ends or any malposition occasioned by muscular contraction, viz., the principle of extension, counter-extension, and fixation. Certainly, its application is most obvious in a fracture of the surgical neck of the humerus, and it shall be my pleasure to present to you a mode of treatment which embraces this principle and which, I think, is free from many of the objections found in the others. It consists of a thin piece of board from two and one-half to three inches wide and long enough to extend from the elbow to about two and one-half inches above the tip of the shoulder. This is well padded and placed on the outer side of the arm. The lower end is fastened by straps of adhesive plaster passed over the end of the splint and around the arm running upwards and inwards on both sides with one or two strips placed around all to prevent the plaster from slipping. Thus, the foot of the splint, as it were, is held in a sort of stirrup; then an axillary belt is made of cotton batting rolled in soft muslin and placed under the arm, the ends being crossed and brought together over the shoulder. Now, by grasping the ends of the axillary belt in one hand and drawing upward, at the same time pressing gently downward upon the upper end of the splint with the other hand, we make the extension in the normal line of the shaft until the fractured ends are approximated. The axillary belt is then brought over the end of the splint and fastened. One or two straps are then passed around the arm at different points, the hand is placed in a broad sling and the elbow left free, and the dressing is complete. (See illustration.)

You will observe that in making extension in this way we overcome the contraction of all the muscles and the parts assume their normal relations. The axillary belt draws upon the muscles causing the inward displacement, while the downward extension overcomes the shortening and brings the upper fragment down into place. We also give to the muscles their normal support by arranging the splint in such a manner that it becomes a substitute for the fractured shaft. It will also be noticed that the neck of the scapula is incorporated in the dressing so that any movement of the shoulder carries with it the whole arm, instead of the upper fragment, as in the case when the arm is bound to the body and the scapula left free; for it must be admitted if the lower portion of the bone is fixed, even though there be a cap placed over the shoulder, any movement of the scapula will produce motion at the seat of the fracture.

This dressing permits of considerable movement of the arm, which takes place freely at the shoulder-joint without in the least disturbing the fracture. This plan of treatment has always proven most successful in my hands and has given better satisfaction than any other I have ever used or seen used, and I have never seen a case in which the bone failed to unite when this plan was followed. The dressing is very simple, easy to apply, and the materials of which it is composed are always at hand. I have spoken of its use in a fracture of the surgical neck only, but it is equally practicable in any fracture of the humerus from the anatomical neck to within three or four inches of the condyles.

THE PHENOLSULPHONEPHTHALEIN TEST FOR ESTIMATING RENAL FUNCTION*

By G. S. Adams, M.D., and E. V. Eyman, M.D.

YANKTON, S. D.

All careful workers in medicine, whether internists, surgeons, or general practitioners, have keenly felt the need of some adequate, reliable, and simple method of determining functional activity of the kidneys. Heretofore such tests have not proven entirely satisfactory, because no single test has given sufficiently accurate information as to the proper functionating of these organs. Since the introduction, by Rowntree and Geraghty[1], of the phenolsulphonephthalein test for this purpose and the publication of their original communication on the results of its use, much has been written on the subject in confirmation of their work, and many interesting clinical and experimental studies have been presented by numerous writers.

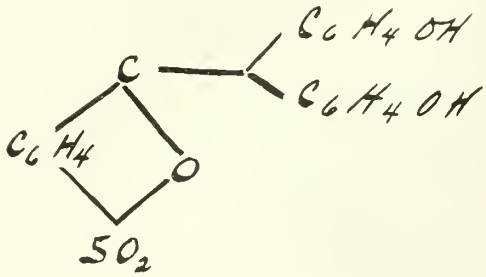
Because of its simple technic and the uniform good results obtained at the hands of those who have used this test, this brief paper is presented for the purpose of calling attention to the importance of the procedure and urging its more

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

general adoption as a routine in studying renal disorders.

Remsen and Sohon[2] first made phenolsulphonephthalein by the action of phenol on the anhydrid of orthosulphobenzoic acid. Sohon described the sulphonephthaleins as intensely colored substances, slightly soluble in water, but more so than the corresponding derivatives of phthalic acid. They are readily soluble in alkaline solutions, and are soluble in alcohol, from which they are precipitated in crystalline form by ether.

Phenolsulphonephthalein $C_{19}H_{14}SO_5$



was obtained as a bright-red crystalline powder, precipitated from alcohol by ether, as a yellowish-red crystalline powder, which on removal from the liquor instantly gave up ether and solidified into a dark mass, which was apparently the same material.

In dilute alkaline solution phenolsulphonephthalein is purer red than phenolphthalein. In more strongly alkaline solution it is purple. It is about as sensitive to acids and alkalies as phenolphthalein.

As has been stated, phenolsulphonephthalein is made by the action of phenol on the anhydrid of orthosulphobenzoic acid. Slagle[3] has proposed the cheapest and most practical preparation of the anhydrid. He prepares it by distilling the free acid obtained from the acid ammonium salt of orthobenzoic acid with phosphorous pentoxide. The acid ammonium salt can be obtained quantitatively from commercial saccharin. One-half kilogram of phenolsulphonephthalein can thus be prepared at the cost of chemicals alone of about seven dollars.

In 1909 Abel and Rowntree[4] conducted many animal experiments on the pharmacology of phenolsulphonephthalein, which experiments conclusively reveal the non-toxicity of the drug, and show that nearly the entire quantity taken up by the organism is excreted in the urine.

Given by mouth, it appears in the urine in about an hour and a half.

One dram of the phthalein was given subcutaneously to a dog, and only a small trace was recovered from the feces.

As was demonstrated by making a gall-bladder fistula, phenolsulphonephthalein is excreted freely in the bile, and it follows from its non-appearance in the feces that it is re-absorbed.

All parts of the intestine absorb the drug as opportunity offers, contrary to the results of experiments on the absorption of phenolphthalein. After injection of moderately large doses, no albumin, casts, or sugar appeared in the urine of dogs. In one-gram doses it was mildly diuretic in rabbits. In one-gram doses it had a doubtful purgative effect in dogs, when given by mouth. Given subcutaneously, no effect whatever was noticeable. When .115 gm. of phthalein was given to a 650-gram kitten no toxic symptoms were noticed. A dog weighing eight kilograms was nephrectomized. One gram of phthalein was given subcutaneously, and at the end of ninety-six hours the dog was killed. He behaved in an entirely similar manner to another nephrectomized dog, and gave no evidence of drug toxicity, either clinically or post-mortem.

There seems to be a unanimity of opinion among the workers familiar with the phthalein test as to its adequacy and reliability. It is generally regarded as much simpler in technic and more accurate in results than any other test of renal function and is undoubtedly the best single test at our command, at the present time, for the purpose of functional renal diagnosis and prognosis.

So far as is known there is no pathologic condition of the kidneys which shows an increased permeability to the drug.

In nephritis, whether acute or chronic, it reveals the true degree of functional derangement, and is of immense value from a diagnostic and prognostic standpoint. Cabot and Young[5], however, express some doubts as to its accuracy in the chronic form of this disease.

It is of especial value in cardiorenal disease in denoting the organ principally affected, and is a reliable method of measuring improvement in the functional activity of the kidneys as the passive congestion is removed.

It has been shown that we have in this test an important means of diagnosing uremia from conditions simulating it, as well as indicating its impendence when there are no clinical symptoms to suspect it.

In cases of urinary obstruction, resulting in a

vis-a-tergo pressure and consequent damaging of the kidneys, it has proved of great value in revealing the true renal condition. In these cases it is of great value to the surgeon in selecting a time for operation when the kidneys are in their best functionating condition. When the time of appearance was delayed beyond twenty-five minutes and the output was below 20 per cent for the first hour, Rowntree and Geraghty postponed operation regardless of the patient's clinical condition, and instituted routine treatment. If the output remained low but constant the renal function was considered in a stable condition, and the operation was undertaken, care being taken to select an anesthetic which would not further depress the renal function. In one case a successful operation was performed with an output of 8 per cent for the first hour, but this output had remained constant for a period of eight weeks.

Keyes and Stevens [6] disagree with Rowntree and Geraghty in not considering a diminishing phthalein output an absolute contra-indication for operation in cases of prostatic hypertrophy and prostatic tumor. Neither can they place a definite low limit to the phthalein excretion with successful operative result. They believe the greatest safeguard in prostate cases when the phthalein is low, is suprapubic section, followed by prostatectomy after a suitable interval, preferably performed under spinal anesthesia. They believe that in these conditions the test is of more value in conjunction with the clinical condition than the study of the urine output, total solids, total nitrogen, and urea estimations combined.

In unilateral and bilateral kidney disease the functional capacity of each kidney, as well as the relative proportion of work done by each, can be determined when the urines are collected separately. Keyes and Stevens believe that ureteral catheterism may be misleading as to result. Relative efficiency, however, remains correctly indicated, consequently the test should be performed both with and without catheterization, and a comparison of results made. They believe the microscopic findings are the most important elements in ureteral catheter diagnosis. Urea and phthalein should confirm these findings, and successive specimens are necessary in ambiguous cases. Thomas[7], in a study of the comparative merits of phenolsulphonephthalein and indigocarmin, believes that it is extremely doubtful whether phenolsulphonephthalein can ever supplant indigocarmin in unilateral diagnosis because, with the latter dye, ureteral catheterization is rarely necessary, since the onset of the indigo elimination can be readily seen through the cystoscope as the blue jets of urine are ejected from the ureteral orifices into the bladder.

Applied after nephrectomy it has been found that the remaining kidney excretes an amount greater than the combined output of both kidneys before operation.

Goldsborough and Ainsley[8], in studying renal activity in pregnant and puerperal women, found that normal obstetric patients eliminate phenolsulphonephthalein more slowly than non-pregnant individuals. Whether this is due to the ordinary changes in metabolism observed at that time or to some other factor they were unable to state.

The technic as recommended by Rowntree and Geraghty[9] is as follows:

"Twenty minutes to half an hour before administering the test, the patient is given 300 to 400 c.c. of water, in order to insure free urinary secretion; otherwise delayed time of appearance may be due to lack of secretion. Under aseptic precautions a catheter is introduced into the bladder, and the bladder is completely emptied. Noting the time, 1 c.c. of a carefully prepared solution of the phenolsulphonephthalein containing 6 mg. to the cubic centimeter is accurately administered, subcutaneously, intramuscularly, or intravenously, by means of an accurately graduated syringe.

"The urine is allowed to drain into a test-tube in which has been placed a drop of a 25 per cent solution of sodium hydroxid, and the time of appearance of the first faint, pinkish tinge is noted.

"In patients without any urinary obstruction, the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour and into a second receptacle at the end of the second hour.

"A rough estimate of the time of appearance can be made by having the patient void urine at frequent intervals without the use of the catheter. In prostate cases it is wise to have the catheter in place until the end of the observation.

"When a catheter is to be employed it is well to previously have the patient under the influence of hexamethylenamin.

"Sufficient sodium hydroxid (25 per cent) is added to make the urine decidedly alkaline, in order to elicit the maximum color. The color displayed in the acid urine is yellow or orange, and this immediately gives place to a brilliant purple-red color when the solution becomes alka-

line. This solution is now placed in a liter measuring-flask and distilled water added to make accurately 1 liter. This solution is then thoroughly mixed, and a small filtered portion taken to compare with the standard which is used for all of these estimations."

In normal cases the first faint color appears in the urine in five to ten minutes, when the excretion is free, and 40 to 60 per cent of the 6 mg. of the dye is recovered the first hour. From 15 to 25 per cent is recovered the second hour, or a total of 60 to 85 per cent in the two hours. Even in health the time of appearance may be delayed when the secretion of urine is scanty. Rowntree and Geraghty believe the time of total elimination is not so important as the elimination in a certain period. In the majority of cases, excretion is completed in two hours, only a trace being recovered after the second hour.

"The excretion of the drug does not run parallel to the excretion of the urine. It is immaterial, as far as the excretion of the drug is concerned, whether the urinary output is 50 c.c. or 500 c.c. Similarly, the output does not seem to be much influenced by the previous administration of the different diuretics."

There are a number of instruments on the market by which the estimations may be made. The Duboscq colorimeter is undoubtedly the most accurate, but likewise the most expensive. The Rowntree and Geraghty modification of the Helege hemaglobinometer is less expensive and sufficiently accurate for all practical purposes. The Dunning colorimeter is inexpensive and will give fairly satisfactory results for one wishing a still cheaper instrument. Geraghty[10] has pointed out the fact that for practical work no colorimeter is necessary. The specimen may be placed in a tube and compared with a tube containing a known quantity of the dye, dilution being made until the colors in both tubes are identical. The percentage of excretion may then be made by simple calculation. This last method can hardly be recommended except in cases of necessity.

The estimations in our cases were made by means of the Rowntree and Geraghty instrument, which consists of a rectangular box in which there is a hollow prism containing the standard solution and a rectangular cup for the diluted urine to be examined, so arranged that the wedge-shaped cell moves on the sliding back until the density in color of the standard solution in the hollow prism and the diluted urine in the cup is identical.

First, the wedge-shaped cell is filled with a standard solution, made by diluting exactly 6 mg. of phenolsulphonephthalein with 10 c.c. of a 25 per cent solution of sodium hydroxid and sufficient distilled water to measure exactly one liter. The cell is then placed in the rectangular box. The specimen is diluted to about 200 c.c. with water and rendered alkaline by the addition of 10 c.c. of a 25 per cent solution of sodium hydroxid, further diluting the alkaline urine with water to make it measure exactly 1 liter. Enough of this solution is clarified by filtration to fill the rectangular cup to the mark indicated upon it. The cup and contents are then placed in the apparatus and the wedge-shaped cell manipulated until the colors, as seen through the prism, are identical, when the percentage of secretion will be directly indicated on the scale.

If, after adding the alkali, the coloration of the specimen is slight, showing small secretion of the phthalein, then the dilution should be carried only to 250 or 500 c.c., and the reading on the scale divided by four or two, as the case may be.

In employing this test one will at times encounter a difficulty which makes accuracy of the reading impossible, because of the yellowish color of the diluted urine as compared with the standard solution. A simple method suggested by Whitney[11], of San Francisco, is to "interpose a piece of fairly vivid yellow glass between the eye and the solution to be compared, since, viewed through such glass, urine and clear water are almost indistinguishable."

The color of the phthalein fades in alkaline urine solution, but remains unchanged when the solution is strongly acid. If the specimen is made alkaline, the estimation should be made within a few hours. If it is desired to delay the estimation, the specimen may be made strongly acid and kept for several days without any decomposition of the dye. The standard solution, however, remains fairly stable, no deterioration of any consequence having been detected by us after several weeks' standing.

The lumbar intramuscular method of administration is to be preferred. The time of appearance is practically the same as in the subcutaneous method, but the total elimination is from 5 to 10 per cent more. When administered intravenously, the time of appearance is much earlier, three to five minutes, and 35 to 45 per cent is eliminated during the first fifteen minutes, and 50 to 65 per cent the first half hour, totalling 63 to 80 per cent for one hour. When this method is

used, it is only necessary to observe one or two fifteen-minute periods.

It is important that an accurately graduated syringe be used for the injection, as an error of one-tenth of a cubic centimeter will vitiate the final reading 10 per cent. Especially is this important if injections are to be made by different workers with different syringes, and the estimations made by the same instrument.

The drug is available ready for injection in ampoules containing 6 mg. of the dye to each cubic centimeter of the solution and may be obtained through any supply house.

Since February of the present year we have applied the test in 118 cases, making in all 129 estimations. The cases were principally recent admissions to the South Dakota State Hospital at Yankton, and represent various clinical entities. Complete chemical and microscopical urinalyses, together with blood-pressure observations, were made in each case.

We give below the results of our own work with phenolsulphonephthalein.

The first table presents the averages of elimination in our series of 118 cases. The averages are taken from groups of cases classed according to their urinary findings.

Table 1

No. of Cases	Group	Elimination, Per Cent
33	No urinary findings	71
27	Occasional casts	66
10	Few casts	63
21	Many casts	56
18	Trace albumin	58
2	Moderate albumin	55
4	Abundant albumin	31
33	No urinary findings	71
37	Few casts or occasional casts	65
46	Many casts, or albumin	55

The second table groups the cases according to age, and gives the elimination average for each group.

Table 2

No. of Cases	Age	Elimination
2	Below 20	73 per cent
16	20-30	72 per cent
26	30-40	70 per cent
22	40-50	65 per cent
28	50-60	59 per cent
14	60-70	49 per cent
3	70-80	53 per cent

The third table groups the cases according to blood-pressure.

Table 3

No. of Cases	Blood-Pressure	Elimination
42	Below 130	67 per cent
30	130-150	66 per cent
16	150-170	63 per cent
9	170-200	58 per cent
6	Above 200	40 per cent

In making up the first table we discovered several very interesting things.

All normal cases eliminated above 55.

85 per cent of all normal cases eliminated above 65.

70 per cent of all cases with few or occasional casts eliminated above 65.

10 per cent of all cases with few or occasional casts eliminated below 55.

No case with few of occasional casts eliminated below 40.

34 per cent of all cases with many casts eliminated below 55.

14 per cent of all cases with many casts eliminated below 30.

63 per cent of all cases with many casts eliminated below 65.

60 per cent of all cases with albumin eliminated below 65.

28 per cent of all cases with albumin eliminated below 55.

12 per cent of all cases with albumin eliminated below 30.

All cases with heavy albumin eliminated below 65.

75 per cent of all cases with heavy albumin eliminated below 55.

25 per cent of all cases with heavy albumin eliminated below 30.

In analyzing our statistics on the second table we discovered that—

88 per cent of the cases between twenty and thirty years of age eliminated more than 65. All cases in this group eliminated above 55.

In contrast with the above, 84 per cent of all cases between 60 and 70 eliminated below 65 per cent and 49 per cent eliminated below 55 per cent.

Turning now to consideration of our cases grouped according to elimination, we find that of all cases eliminating above 75, 55 per cent are cases with no urinary findings, and 25 per cent are cases with few or occasional casts.

Of all cases eliminating between 65 and 75, 34 per cent are cases with no urinary findings, and

42 per cent are cases with few or occasional casts.

Of all cases eliminating between 55 and 65, 50 per cent are cases with albumin or many casts.

Of all cases eliminating between 40 and 55, 55 per cent are cases with albumin or many casts.

Of all cases eliminating below 40, all are cases with many casts or with albumin.

40 per cent are cases with many casts.

30 per cent are cases with abundant albumin.

Of all cases eliminating over 80, 80 per cent are under 40 years of age, while 51 per cent of all eliminating over 65 are under 40 years, notwithstanding the fact that those under 40 compose only 44 per cent of the total number tested.

Of all cases eliminating below 55, only 6 per cent are under 40 years.

We present below a few of our more interesting cases:

Case 1.—F. K., farmer, married, aged 63. Entered the hospital June 7, 1912, suffering from general paresis and chronic interstitial nephritis. He was up and around most of the time until he was put to bed in December on account of motor restlessness. Slight edema was present about the ankles. The heart was moderately enlarged. His urine on February 10th was 1,015, acid, amber, pale, and clear; albumin, slight; many casts (hyaline, granular, and cellular); cylindroids; many leucocytes and red-blood cells. His blood-pressure was 230 systolic and 160 diastolic. He grew gradually worse, and on February 7th he was injected with phenolsulphonephthalein. His elimination was 20 per cent for the first hour, and a mere trace the second. He became unconscious on March 5th and died March 7th. Autopsy: hemorrhage into the right lenticular nucleus, the size of a hazelnut. There were hypertrophy of the heart, enlargement of the cardiac orifices, advanced fibrous thickening of all valves, and moderate sclerosis of the coronaries. The left kidney cut with increased resistance. The capsule stripped readily. The cortical substance was diminished, and had a grayish mottled appearance. Its weight was 110 grams. The blood-vessels were thickened and enlarged. The right kidney conformed to the description of the left. The same changes were present, but were more marked. The cortex was one-half centimeter thick. The weight was 105 grams.

Case 2.—S. H., aged 50, farmer, married, epileptic. He entered the hospital in 1898.

In the summer of 1912 he began to suffer from trachoma, which still persists.

In December he was rather suddenly attacked with great shortness of breath and marked edema of the legs and lower eyelids. His heart was found to be much enlarged, and the pulse was 160, irregular and weak. His blood-pressure was 140, and urinalysis showed extremely abundant albumin and an enormous number of casts of all descriptions. There were also many epithelial cells, squamous, tailed and round, all showing considerable degeneration. Some erythrocytes and leucocytes were present. The specific gravity was 1,007; urine was acid, straw, clear. He was placed in bed and put upon digitalis, but his condition continued to remain grave, and in March another analysis gave practically the same findings. He was injected March 7th and eliminated 9 per cent the first hour and 4 per cent the second, a total of 13 per cent. He was again injected on March 29th, when his clinical condition had somewhat improved. At that time he eliminated 8 per cent the first hour, and 10 per cent the second, a total of 18 per cent. On May 12th he had improved considerably. The edema had entirely disappeared, his pulse was running about 70, and he suffered from no shortness of breath. He was still confined to bed. A third injection gave an elimination of 14 per cent for the first hour and 13 per cent for the second, a total of 27 per cent.

Case 3.—W. F. C., aged 55, married, epileptic. He entered the hospital in 1898. In March, 1913, he became suddenly troubled with shortness of breath, headache, and edema of the legs and feet. His heart was found to be considerably enlarged, and his pulse was running from 120 to 150 and was irregular. His blood-pressure was, systolic 230, diastolic 160. His urine was 1,014, faintly acid, amber, clear, and aromatic. Abundant albumin was present, 1 per cent by Esbach. A great abundance of hyaline, granular, and cellular casts were found, in addition to cylindroids, degenerated epithelium, transitional, round, and tailed. Spermatozoa, red-blood cells, leucocytes and ammonium oxalate crystals were likewise present. He was placed in bed and upon digitalis, and injected on March 27th, after the edema had commenced to subside. He eliminated 25 per cent the first hour and 16 per cent the second, a total of 41 per cent. On April 18th the albumin had decreased to .5 per cent, and on April 28th was not measurable. On May 14th the albumin was distinctly present, but not measurable, and the casts were still very plentiful. His clinical condition had considerably improved. He was still in bed, and still became short of breath on slight exertion, but the edema had disappeared, and his pulse was running about 50 and was fairly regular. He was injected a second time on May 12th and eliminated 17.5 per cent the first hour and 7.5 per cent the second, a total of 25.

Case 4.—Mrs. B., aged 23, married, occupation nurse, three months pregnant. Previous health exceptionally good. During pregnancy troubled with rather more than the usual vomiting. Sometimes she vomited all day. At the close of the third month the vomiting had considerably diminished; in fact, it had practically stopped. Frequent urinalyses had shown nothing abnormal. On May 23rd she became very ill. She fainted in the morning, and vomited excessively all day. She complained bitterly of headache, and of precardial distress. She was also troubled with occasional severe cramping pains in the pelvis and with pain across the lumbar region. She was of a somewhat emotional nature, and had been worrying all day on account of the absence of her husband. At about 10 o'clock in the evening, while sitting up in bed, she suddenly fell back and became rigid. Her head was drawn to the left and pressed back into the pillow. Upon the arrival of the physician she was tossing about restlessly, and made no answer when questioned. Nystagmus was present. The pupils

were equal. The patient ground the teeth continually and kept plucking at the covers. Her pulse was 160, weak, and irregular. Her heart was slightly enlarged.

In about an hour she recovered consciousness completely and asked for a glass of water. She expressed surprise at the presence of the physician, and remembered nothing of the events of the previous hour. The pharyngeal reflex was gone. No more convulsions followed, and her condition rapidly improved. Urinalysis showed a trace of albumin, much indican, and a few casts. Specific gravity, 1,022. Phenolsulphonephthalein, first hour 41 and second hour 21, total 62.

Case 5.—J. C., aged 20, single, cook. Previous health, exceptionally good. Consulted physician on account of pain in the back, which was increased on exertion. The remainder of the history was negative. He weighed 185 lbs., was well developed and robust. Physical examination, negative. Had failed to pass a life insurance examination six months previously on account of albumin and casts in the urine. Examination of the urine in March showed specific gravity, 1,027, amber, clear, and odor slight. The twenty-four-hour specimen measured 55 ounces. Albumin was abundant, 0.5 grams per liter by Esbach. Doremus method showed the presence of 0.25 grams of urea per c.c.

Casts were present in large numbers, hyaline, large and small; granular, fine and coarse; cellular. Cylindroids, leucocytes, and epithelium were likewise present. His blood-pressure was 138 systolic and 96 diastolic. Phenolsulphonephthalein first hour 55 and second hour trace, total 55.

Case 6.—C. W., aged 21, attendant, single. Previous health, exceptionally good. He consulted the physician on account of chronic constipation. He was well developed, robust. Physical examination was negative; urine, 1,023, acid, amber, clear, and aromatic; albumin, trace; indican, positive; hyaline and granular casts; leucocytes; erythrocytes; epithelium. Blood-pressure, 122 systolic, 78 diastolic. Phenolsulphonephthalein, first hour 68, second hour 13, total 81.

In the second case (S. H.) described above, it will be noticed that an improving clinical condition is associated with decreasing phthalein elimination. It is too early to attach any significance to this fact. Subsequent events will determine the accuracy or inaccuracy of the grave prognosis here established by the test.

In the third case, that of W. F. C., on the contrary, we note an improving clinical condition accompanied by an increasing phthalein output.

The fourth case, Mrs. B., is interesting. The phthalein here apparently indicates that the kidneys are functioning in a fairly normal manner, notwithstanding the occurrence of a suspicious convulsion and the presence of albumin and casts in urine, which two weeks previously had been normal. It is interesting in view of this fact, that the patient has been rapidly improving, no more convulsions having occurred. It must be borne in mind that the patient was of a somewhat hysterical disposition.

The last two cases, J. C. and C. W., are difficult of explanation. Two young men of vigorous health present marked urinary findings. In one of these cases, at least, the findings had been of considerable standing. The phthalein elimination, especially in the case of C. W., corresponds rather to the clinical condition than to the urinary findings. In the case of J. C., the elimination is slightly low for a boy of twenty years.

From our experience with the phenolsulphonephthalein we feel that the claims made for it by the originators of the tests are not exaggerated. While our small series can furnish no definite conclusions as to accuracy of the test, yet what results we have obtained fall in line fairly well with the work done by Rowntree, Geraghty, Keyes, Thomas, and other investigators. It is to be regretted that sufficient time has not elapsed to follow through the entire history of some of our more interesting cases.

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TELL YOUR TROUBLES TO THE DOCTOR

If a patient consults a physician and expects to get his money's worth for the experience, he must tell all of his history to the doctor. There are too many patients who are reticent about their troubles,—physical, mental, personal, and domestic. There are too many physicians, too, who are prone to make a casual and superficial investigation, to arrive at hasty conclusions, and to prescribe medicine rather than give advice. There is a double disappointment. The patient is conscious of not having given the doctor a clear field, or goes out smiling with the confidence that he has kept his real troubles to himself; and probably the doctor sometimes smiles in his commonly complacent way at the ease and promptness with which the interview was terminated. If patients must consult physicians, a complete history should be the first thing undertaken, and the history should embrace everything that relates to the patient's birth, education, environment, and physical and mental distress. If patients were more willing to consult an advisor rather than take medicine for their so-called aches and pains, they would get a good deal more for their money than they do under most circumstances.

The time is rapidly approaching when the advice of the physician and the analysis of his patient will be of more value than many of the surgical suggestions or the tablets and bottles. People are seeing things more clearly, and they want personal and individual attention. No matter how skilled and scientific a physican may be, he can not see into the inner life of the patient unless that life is confessed or analyzed. In some respects the psycho-analyist brings out more of the real cause of suffering than does the physician. On the other hand, he goes too far in one direction, and is not thorough enough in another. And, furthermore, he takes chances in his method of psycho-analysis by making suggestions that are harmful to the patient.

The tendency of the age is toward speed and exhaustion, and no medical man can prevent disease or destruction unless he knows the fundamental cause of this over-progress. Over-weening ambition, tendency to push one's self into the foreground, and the effort to keep up with the inhuman procession are not infrequently the beginning of a nervous breakdown. Very few realize the side-paths which break into one's life and which disturb one's growth and poise, unless the daily thoughts and conduct of the patient are the subject of the most careful scrutiny. If the spirit of simplicity, slower speed methods, and more care of one's self and, one might add, of one's children were the watchword for the coming generation, there would be less crime, less immorality, and infinitely fewer nervous disorders. When the patients consult a physician and go over the story of their lives and their complaints once, and a record is made of such history, the subsequent consultations and advice are of far greater value than if the story be half told and half recorded. The physician would be fully justified in telling the patient that a complete first investigation and analysis is worth a good fee, and that an adequate return for the money expended might be expected.

THE BLIND TABETIC

In the September issue of the *Journal of Mental and Nervous Disease*, Dr. William J. M. A. Maloney has a very interesting article on blindness and tabes, with an introduction to a new method of curing ataxia. He discusses the various forms of tabes, its relationship to blindness and its further relationship to general paresis; and he believes, with other authorities, that in spinal tabes, general paralysis, and optic tabes the disease process is identical and that the dis-

case occurs at one site or another according to conditions peculiar to the attacked individual. Individual and focal selection seems to be the rational explanation for the association of these three disorders.

Maloney goes over the literature of the subject very carefully and summarizes his conclusions by stating that neither the occurrence of optic atrophy nor blindness retards or influences the evolution of the structural changes which accompany the tabetic process in the spinal cord and elsewhere. He thinks that in the primary tabetic attack the localization is largely accidental. He further says that the law governing the distribution of the tabetic lesions is as follows: If special fragility exists at any site and the amount of the tabetic poisoning is limited, then the site of election for the initial process is the fragile part, and it will be the main site of the disease. If no special fragility be present, the disease will be diffuse. If special fragility occur and a large amount of tabetic poison be present, then the fragile is the primary site of the process, which, later, will become generalized. The visual acuity in tabes will depend upon the capacity of the individual.

Improvement in ataxia may result when a lack of vision is present after an adequate interval has elapsed and when incoördinating lesions remain stationary, and the mental capacity for training is not destroyed by cerebral disease.

Even if the structural lesions in tabes extend, it will have some compensating influence on the blindness. Neither will there be very much difference in the incoördination lesion and the blindness in some instances because they neutralize each other.

Dr. Maloney establishes the fact that increase of ataxia may occur in spite of the blindness. This, he believes, controverts the old idea that when a tabetic becomes blind his ataxia ceases to advance, and it is not safe to make any definite prediction in this direction. An incoördinating lesion may advance faster than the coördinating tendency of the blindness grows. There may be also an increase in other morbid signs which show the progress of ataxia as an index to the general advance of tabetic spinal lesions.

If tabetic blindness is accompanied by cerebral deterioration of such extent as precludes training and prevents improvement, then the extent of the blindness can not be estimated accurately.

Maloney also shows that of two tabetics at any stage of the disease, one blind, the other seeing, the blind has the greater tendency to persist coördinate, the lesser tendency to become ataxic. This, however, depends upon the duration of the blindness and the training of the individual.

The treatment of these conditions, which the writer simply touches upon, is one which enhances sensory perception. The tabetics can be taught to appreciate their surviving postural and muscular sense impressions to such a degree that hopeless, bedridden ataxics quickly learn to walk again. Maloney believes that the degree of improvement attained by this method seems to be greater than what was formerly acquired through Frenkel's exercises.

These observations should be very carefully analyzed, and Dr. Maloney promises, in a subsequent paper, to outline more definitely the method of treatment of ataxia through sensory perception.

EUGENICS—A PENDULUM

The literature on eugenics leads the unthinking to believe that the subject is a new one, when, as a matter of fact, it is older than some of the hills.

In the stone age a primitive attempt was made to produce a wonderful race, and the unwritten laws prescribed death for the unfit and a mating of the superlative man and woman. The result was that, for a period of decades, the people were big, bulky, and strong; and their aims and occupation in life were war and strife. They raised big people with brawny muscles and small and undeveloped brains. They "fought, bled and died" until the race became depleted in numbers, and eventually natural instinctive matings took the place of the selective types.

It was found that, to produce a sound and progressive people, a mixture of types was highly essential. Later, a more brainy and intellectual variety replaced the dull, heavy, and wholly warlike tribes, and there gradually appeared a people who ruled by reason and judgment. At this time the pendulum swings too far, and its movements are hasty and irregular, but, out of all the discussion and counter-discussion, the eugenist may see the benefits of greater oversight and more care in the upbuilding of a type that will be strong mentally and physically.

Dr. Charles B. Davenport, director of the Department of Evolution of the Carnegie Institute, at Cold Springs Harbor, in the issue of *Bulletin No. 9*, makes some interesting comments. He

says, in his introduction, that "the laws governing marriage selection in the majority of the states are, when viewed from the standpoint of eugenics, totally ineffective, and in some instances are absurd."

Legislatures attempt to frame laws on eugenics without scientific or specific knowledge of the subject. He quotes the correspondence of an unnamed woman enthusiast, who says: "I have a brother in the legislature, and I have a sterilization bill and one requiring a medical certificate before marriage. Now, is there any other law that you can suggest that he should get through?"

Dr. Davenport, in comment, says: "Legislation may be said to be a favorite American universal panacea for social evils. It is cheap at least." The legislature referred to rejected a bill to appropriate $2,000 for a first study, in the field, of the magnitude of the problem of the feeble-minded. The average legislature is more apt to copy the bill of another state rather than spend a dollar in investigation on a subject of sociological importance.

In an attempt to legislate against unfit marriages, the aim is to prevent the insane, idiotic, imbecile, or feeble-minded, and, in some states, criminals, from entering into a legal contract. In other states the grounds are theoretically eugenic. Is the objection sound from a biological or eugenic point of view?

It is generally conceded that grossly feeble-minded people should not inter-marry, but it is not sound to prohibit a mildly feeble-minded person from marrying a normal or healthy mate. At least, one of the contracting parties should be normal, and the evidence goes to show that the offspring are usually healthy. A neuropathic strain under such circumstances is not necessarily a detriment, and, in fact, may be a benefit in the majority of instances. It has been truly said that the highly organized neurotic is the one who "makes the world go round."

Even if the result of marriages between the mildly unstable people is productive of unstable offspring, the probabilities are that the major number of this class will consort with normal mates, and the ultimate result will be good.

The laws forbidding marriage between the unfit are not infrequently nullified, for the reason that they beget children without getting married. Laws cannot prevent reproduction. There are innumerable instances on record where a mentally vigorous man marries a socially attractive and beautiful, though defective, woman. Such a marriage, even from a eugenic standpoint, is permissible. The offspring may be brilliant and have all the qualities needed in the business or social world. It is unwise and unsafe for an individual who has epileptic convulsions to marry, but the so-called psychic epileptic may marry a normal mate without much danger of a reproduction of the taint in one of the parents. Why prevent such a union by law? Compulsory segregation of those who are grossly defective is the only safe way of protecting the public and the state.

Prohibition of marriage of the insane is futile. If such mental states exist before marriage, a state institution is the place for those thus afflicted. If people become insane after marriage from incidental causes, can this be remedied by legislation?

One must consider every phase of the question and of marriage of individuals before restricting laws will be of benefit. The study of sociology is one that requires keen judgment and analysis, and the ever-present fact must be admitted that love, sentiment, and sensations override all laws, legal or eugenic.

Not infrequently, apparently normal persons marry and produce a dangerous class of offspring, hence environmental problems, the study of the individuals, are of prime importance. The so-called criminal classes are not born, but develop on account of environment, poor physique, and neglect in training and education.

Before plunging into eugenic legislation, let us ponder and investigate.

MISCELLANY

IN MEMORIAM

Dr. James Brainerd Carman, a graduate of the medical department of McGill University, class of '79; a member of the Clay-Becker County Medical Society of the Minnesota State Medical Association, and of the American Medical Association; for thirty-four years a practicing physician at Detroit, Minn., died at his home in that city on Saturday, September 13, 1913, after an illness of a little over three weeks from staphylococcic bacteriemia, aged 58 years.

Dr. Carman was a man of fine character and of most genial disposition, and as a physician was most highly esteemed in the community in which he lived. As a citizen he was public spirited and ready to advance any good cause.

He is survived by his wife, Mrs. Alice J.

Carman; four sons, Dr. James E., William B., John, and Donald; and one daughter, Mrs. J. L. Prior, all residing at Detroit.

Funeral services were held at the home, Monday Sept. 15th, at 3 P. M., and interment was made in Oak Grove Cemetery with Masonic honors.

Members of the Clay-Becker County Society acted as honorary pall-bearers with other intimate friends of the deceased. As a token of the respect and esteem of the community, the business houses and schools were closed by proclamation of the Mayor from 2 to 4 P. M.

L. C. WEEKS, M. D.

NEWS ITEMS

Chisholm is to build a $10,000 municipal hospital.

Dr. G. F. Brooks has moved from Stevenson to Hibbing.

Dr. Leo M. Crafts has returned from a trip to Europe.

Dr. B. H. Hempstead has moved from Duluth to Bloomington, Ill.

Dr. R. H. Leavitt, of Terre Haute, Ind., has located at Carson, N. D.

Dr. J. W. Foster has moved from Lake Preston, S. D., to Brookings, S. D.

Dr. J. Fowler Avery, of Minneapolis, has gone to Europe to visit the hospitals.

Dr. John A. Johnson has moved from Mountain, N. D., to Petersburg, N. D.

The Columbus Hospital building of Great Falls, Mont., is being enlarged.

Dr. E. L. Tuohy, of Duluth, has accepted a position on the Mayo Clinic staff.

Drs. Stribling & Sarchet, of New England, N. D., have dissolved partnership.

Dr. I. C. J. Wiig, of Kenmare, N. D., has sold out to his partner and gone to Florida.

Dr. James Christiansen, of Alden, has sold his practice to Dr. F. W. Davis, of Kasson.

Dr. Charles C. Allen, of Ada, was married last week to Miss May S. Moore, of Arlington, Va.

Dr. C. W. Maynard, of the More Hospital staff, of Eveleth, has moved to Colorado Springs, Colo.

Dr. L. A. Nelson, of St. Paul, has gone to Europe for study in the eye, ear, nose, and throat clinics.

Dr. C. W. Giesen, of Superior, Wis., will spend a year in special study in Europe, mostly at Vienna.

The National Insane Indian Hospital at Canton, S. D., is to be enlarged to double its present capacity.

Dr. Syver Vinje, of Grand Forks, N. D., has purchased the practice of Dr. Smith, of Hillsboro, N. D.

Dr. Frank Smithies, of the staff of the Mayo Clinic, will become associated with Dr. Ochsner, of Chicago.

Dr. Frank Dumont has moved from Brownsville to Freeport. Dr. Dumont practiced for five years in Mankato.

Dr. J. E. Galbraith, of Cavalier, N. D., was married last month to Mrs. Sigrid Brynjolfson, of Wilton City, N. D.

Dr. O. A. Olson, of Oberon, N. D., has moved to Minnewaukon, N. D., and taken up the practice of Dr. A. T. Floew.

The Cloquet schools have medical inspection, which is in charge of Dr. Elizabeth Barnard, formerly of Minneapolis.

Dr. J. E. Curtis, of Haynes, N. D., has moved to Lemmon, S. D., and become associated with Dr. T. O. Sanbo, of the latter place.

Menomonie, Wis., is to have a modern municipal hospital. It will be built and equipped by private subscription and given to the city.

The Health Department of Duluth is considering the abolishment of fumigation, which, as usually practiced, has been shown to be useless.

Dr. Francis Bennett, who has been connected with the N. P. Hospital at Brainerd for the past two years, has begun general practice in that city.

The Children's Orthopedic Hospital of Seattle, Wash., has received a bequest of $18,000 from a deceased locomotive engineer, Mr. Theodore S. Benson.

Dr. S. F. Rudolph, of Ellsworth, Wis., has purchased the instruments and office furniture of the late Dr. Muus, of Albert Lea, and will locate in that city.

Dr. J. M. Scanland, Superintendent of the Insane Asylum at Warm Springs, Mont., is going to Europe to do research work. He has just returned from a trip to Japan.

Dr. H. E. Mohlzahn, of Belle Plaine, has gone to Vienna for an extended course of study. Dr. Geo. W. Snyder, of St. Paul, will have charge of his practice until his return.

Dr. James B. Carman, of Detroit, died on Sept. 13th at the age of 58. An appreciative notice of Dr. Carman written by a fellow practitioner appears in another column.

The annual meeting and luncheon of the Alumni Association of the Medical School of the University of Minnesota will be held at Donaldson's Tea-rooms, Minneapolis, on Friday, October 3, 1913, at 12:15 sharp.

The 1913 report of the Council on Medical Education, of the A. M. A., has just been issued. The School of Medicine of the State University remains in "Class A Plus" division, and the two-year schools of South Dakota, North Dakota, and Oregon are in the next class, which is a very high honor for these schools.

The Goodhue County Medical Society, which met on Sept. 4th at Red Wing, took steps to procure for that county a tuberculosis sanitarium. A committee was appointed to take the matter up with the county commissioners. Drs. H. E. Conley and H. W. McKinstry were elected delegates to the State Association.

The will of the late Dr. F. J. King, of St. Thomas, N. D., has been recorded in that state. The following public donations were made by the will: to the State University, $1,000; to the Children's Home, Fargo, $500; to the State Tuberculosis Sanitarium at Dunseith, $500; and to the State Enforcement League, $500.

The City and County Hospital of St. Paul has granted the Medical Department of the State University the clinical privileges extended by the City Hospital of Minneapolis some time ago. Through a misunderstanding of the plan proposed by the Medical School, its request was at first refused. One-half of the clinical material of each hospital is given to the Medical School staff during the teaching months of the year.

The Minnesota State Medical Association won the suit brought against it by Dr. F. W. Penhall of Morton. Dr. Penhall had expended $431 in defending a malpractice suit, and asked for this amount from the defense fund of the Association. Dr. Penhall had the sympathy of the Association, but his request was denied on the ground that the malpractice suit was brought before the by-law covering such suit was passed. Dr. Penhall's misfortune emphasizes the value of the defense feature of the State Association.

PRACTICE FOR SALE

A $5,000 practice in southern Minnesota; railroad town of 700; with electric lights, city water, churches, high school, four mails daily, and good roads. Collections, 95 per cent. No real estate; moving to city. Address L. M., care of this office.

PRACTICE FOR SALE

A $6,000 to $8,000 practice in a thriving modern North Dakota city of 1,800; railroad center and farming community. Price for quick sale the invoice of office equipment, about $800. Address R. O. N., care of this office.

POSITION WANTED BY NURSE

A registered nurse wants a position in a physician's office or as surgical assistant. Has a college education and possesses some knowledge of laboratory work; experienced. Address T. P., care of this office.

FOR SALE

An x-ray machine fully equipped for electrical and x-ray work. It cost about $1,000, and will be sold for $100, if taken at once; have an operating chair and an oak roll-top desk at a very low figure. Address Mrs. Mary H. McLean, Fergus Falls, Minn.

MINNEAPOLIS OFFICE FOR RENT

Dr. J. Clark Stewart offers his office in the Syndicate building for rent for a part of the day, hours to suit the tenant.

PRACTICE FOR SALE

I have a thoroughly established practice of between $6,000 and $7,000 in a fine southern Minnesota town, which I will give to the purchaser of my real estate at an investment valuation and on terms that any man can meet. The practice can be turned over to and held by my successor and easily increased. Address X. T., care of this office.

PRACTICE FOR SALE

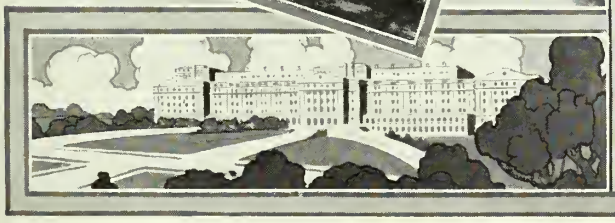
In eastern North Dakota, unopposed $3,500 practice. Can be increased by doing surgery. In town of 500; good crops, and collections 95 per cent. Fine schools, churches, and lodges. Can give possession at once. Address A. T., care of this office.

PHYSICIAN WANTED

A general practitioner to look after my practice for one or two months in good country town of North Dakota. Must be ready to begin between Sept. 5 and Sept. 15. Will pay straight salary if wanted. State salary wanted. Address B. M. D., care of this office.

OFFICE FOR RENT

Office for dentist or doctor in the Masonic Temple, Minneapolis, with reception-room in common with two physicians. Address or call at 504 Masonic Temple, Minneapolis.



A REAL "REST" VACATION

Doctor, some of your patients may be needing a vacation soon—a change of scene, restful diversion and a taste of the outdoor life.

We invite such patients to Battle Creek. Here everything is scientifically planned for rest, recreation and health improvement; the visitor eats, sleeps and lives daily for health in a wholesome, uplifting environment.

The outdoor life, tennis, golf, volley-ball, outdoor swimming, riding, driving, motoring, sailing, tramping—these and many other pleasant recreations are encouraged for suitable cases by the most abundant facilities and favorable conditions. Graduated exercises for feeble patients.

Beautiful expanses of shaded lawn, restful views of charming vistas and the delightful summer climate for which Michigan is noted, all combine to make Battle Creek an ideal resting spot.

LET US SEND YOU OUR BOOK

We have prepared for special circulation "THE BATTLE CREEK SANITARIUM SYSTEM," a large souvenir volume containing nearly 200 beautiful illustrations showing equipment and methods, which will be mailed free on request. Please sign and mail the coupon.

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PUBLISHER'S DEPARTMENT

SALVARSAN

Chetwood, of the New York Polyclinic, says that "an adequate course of salvarsan therapy is essential, following the initial dose, to complete the work that has been begun, and to effect the destruction of all the remaining active organisms."

GOLD MEDAL FOR FAIRCHILD BROS. & FOSTER

Fairchild Bros. & Foster, New York, have been awarded a gold medal for Physiological Pharmaceutical Preparations at the Exhibit in connection with the International Conference of Medicine held in London in August.

THE SECURITY NATIONAL BANK

Quite contrary to general belief, a large bank, such as the Security National of Minneapolis, is more accommodating and more helpful to those who open small accounts than the smaller, even the very small, banks; they furnish every banking facility, have courteous clerks, and meet promptly all the demands of the public in legitimate banking lines.

We know of no bank more considerate of its customers than the Security National, and it cordially solicits the business of our readers.

KENILWORTH SANITARIUM

We have heard a number of physicians who have taken patients to Dr. Sanger Brown's institution assert that it is the most nearly ideal sanitarium they ever saw, and they expressed the delight their visits gave them.

Dr. Brown is an eminent neurologist and has a very able staff. Many an almost hopeless case is cured under such treatment and environment after seeking the best treatment offered abroad.

Dr. Brown's work is a credit to the medical profession.

ST. JOHN'S GERMAN LUTHERAN HOSPITAL

St. John's Hospital of St. Paul is again demonstrating how useful a hospital can be to a denomination and how useful a work a denomination can do through a hospital. Rightly conducted, such a hospital enables the surgeons and the physicians conducting it to do the highest grade of scientific work and to give patients comforts and home surroundings quite impossible in the public hospital.

The able staff of St. John's may well be congratulated on the results the combination of medical science and denominational care have enabled them to obtain.

THE POTTENGER SANITARIUM

In our issue of September 1st, a former superintendent of the Minnesota State Hospital for the tuberculous spoke very highly of a recent work on tuberculin by Dr. F. W. Pottenger of the Pottenger Sanitarium.

Dr. Pottenger's reputation is not confined to this country, for he is recognized the world over as an expert, and no institution in the world offers the tuberculous patient a greater chance to regain his health than does Dr. Pottenger's sanitarium, situated at Monrovia, California. The surroundings are charming, the climate is delightful, and the treatment is scientific in the highest degree.

GOLD MEDAL FOR MELLIN'S FOOD

At the Seventeenth International Congress of Medicine which convened in London during August, Mellin's Food received the Gold Medal, which is the highest possible award in any class. This was the greatest Congress of medical men the world has ever known; some of the most distinguished members of the medical profession from the United States and many other countries were in attendance, and for these reasons, and also because there were a large number of exhibitors present among whom rivalry for the award was most keen, the Mellin's Food Company have reason to be proud of their product.

THE BATTLE CREEK SYSTEM

The Battle Creek Sanitarium is one of the really unique medical institutions of the country; and an account of its work, more especially of its system, has interest for medical men. The management has issued a 225-page brochure, profusely illustrated and handsomely printed, fully describing the "system." Rightly read and interpreted, it is full of interest to every medical man.

The line of treatment at the Battle Creek Sanitarium is, for the most part, thoroughly modern and scientific. The emphasis placed upon suggestion, mainly in environment rather than in any form of statement, is interesting, and its value, as measured by results, cannot be denied. The emphasis placed upon diet is also interesting, and while many medical men may question its value from a scientific standpoint, it produces results empirically not to be denied. It may be part of the environment.

An appendix of twenty pages gives the value, in calories, of practically every food-product known, including the form in which the product comes to the table. This appendix also gives the normal condition, as expressed in size, weight, etc., of a person at different ages, with the food units required.

This brochure is really valuable to every physician, and the sanitarium will send it free to anyone who asks for it.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., OF THE JOURNAL-LANCET, OCTOBER 1, 1913.

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Sworn to and subscribed before me this sixteenth day of September, 1913.

P. M. Woodman.

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CLINICAL DATA ON RENAL LITHIASIS*

By WILLIAM F. BRAASCH, M. D.
Attending Physician to the Mayo Clinic,
ROCHESTER, MINN.

The classic symptoms of renal lithiasis, namely, hematuria, and acute pain referred to the area of the kidney with anterior and downward radiation, were found present in but 117, or 46 per cent, of the 251 patients operated on for renal stone at the Mayo Clinic from January 1, 1900, to January 1, 1913. In 30 patients, or 12 per cent of the total, the pain was referred to the region of the gall-bladder, with posterior radiation suggestive of disease of the gall-bladder. In 32 patients the pain was referred to the lower abdomen, with upward and lateral radiation, suggestive of appendiceal disease. Pain was referred to both sides in 56 patients, or 22 per cent; largely to the affected side in 40, or 15 per cent, and more to the non-affected side in 16, or 6 per cent. Pain was absent or very slight in 21 patients, or 8 per cent; and in 26, or 10 per cent, pain was general over the abdomen. Furthermore, it must be remembered that numerous lesions of the kidney other than stone, as well as disease in the perirenal organs, will cause similar localization and radiation of renal pain.

Even more confusing, from a surgical point of view, is the localization of the stone, since in 107 of the 131 cases of stones in the ureter operated on in the Mayo Clinic the pain was referred largely to the area of the kidney, and its radiation was similar to the pain accompanying that of renal stone. It will be seen, therefore, that the subjective localization of pain associated with renal lithiasis it is so variable that it offers but few data of exact diagnostic value. In order to exclude lithiasis, it becomes necessary to radiograph the abdomen for practically every indefinite pain which is not accompanied by other clinical data to identify it.

Value of the Radiogram.—It is well known that a radiographic shadow located in the region of the kidney does not necessarily indicate renal lithiasis. The majority of such shadows can be recognized from their shape, position, and general characteristics, as being caused by renal stone. The diagnosis of the remainder is dependent on the data of identification given by means of the cystoscope. Furthermore, in the last 100 cases operated on for renal lithiasis, stones were found in 5 cases where they were not shown previously in the radiogram. The types of stone which may not be visible in the radiogram are (1) the soft secondary stone obscured by complicating pyonephrosis, (2) the small stone, the size of a grain of wheat or smaller, as seen with stone-forming kidneys or so-called oxaluria dolorosa, and (3) cystin and uric-acid stones. Shadows occasionally found closely simulating that of renal stone, are caused by a calcified area in cicatricial renal tissue, which alone, in all probability, rarely gives rise to much pain. Calcareous deposits in caseated foci with renal tuberculosis, may cause shadows which are frequently mistaken for renal stone. Although such shadows are frequently recognized by their hazy, irregular outline in the ra-

*Read before the Tennessee State Medical Association, April 10, 1913.

diogram, they can be definitely identified by means of cystoscopic data. Calcareous deposits in hypernephroma were observed in 3 cases as the cause of renal shadows. They are usually to be identified by the various clinical means of diagnosis, particularly the pyelogram. Two cases were observed in which, on exploration, one or more cysts with a calcareous lining were found in the renal cortex, causing a peculiar circular shadow in the radiogram outlining the wall of the cyst. An organized blood-clot with slight calcification giving a hazy shadow, suggestive of a soft stone, was found at operation in 5 instances.

Among the numerous conditions which may give rise to shadows in the perirenal area, gall-stones are of particular interest. Although it is not our routine procedure to radiograph patients with symptoms typical of gall-stones, it is done whenever the localization of the abdominal pain is at all suggestive of renal lithiasis. Consequently we occasionally find shadows in the radiogram caused by gall-stones, and they must be considered in the interpretation of every shadow in the region of the right kidney. The shadow of the gall-stone is often recognized by the following characteristics: (1) high location (on a level with the 11th rib or above), (2) circular form, (3) multiple overlapping grouping, (4) the periphery of the stone usually casting a more definite shadow than the center, so that the resulting shadow is that of a ring, the center of the stone being invisible. When, however, the gall-stone shadow is single, lies in the area of the kidney, and has the irregular shape and uniform character usually found with renal stone, it may easily be mistaken for renal stone, and pyelography will be found the best and often the only method of identifying its origin. Particularly confusing is the clinical picture when a shadow-casting gall-stone is found coincident with other abdominal lesions or with inflammation in the urinary bladder, as occurred in two cases that recently came under my observation.

Identification and Localization.—After demonstrating a shadow, the next step is its identification and, if caused by stone in the kidney, its localization. Although the position of the shadow in question can frequently be ascertained by its relation to the outline of the kidney as seen in the radiogram, because of technical reasons the shadow of the kidney will often be indefinite. If there be a large definite shadow in the region of the kidney, and if purulent urine containing no tubercle bacilli be obtained from the affected side on cystoscopic examination, the diagnosis of renal stone would be reasonably certain. Furthermore, if the shadow were large (an inch or more in diameter), further localization would, as a rule, be unnecessary, since a stone of that size should be readily discovered at operation. However, when a shadow in the radiogram is small, and the urine from the affected kidney is comparatively clear, the shadow requires not only identification but localization as well. The best method, both of identification and localization of the shadow, is to compare the relation of the shadow in question with that of the injected pelvis, as in pyelography. The majority of stones in the kidney that are large enough to be visible in the radiogram, will cause recognizable changes in the renopelvic outline, as shown in the pyelogram. If no change from the normal is noted, the shadow in question may be considered extrarenal. The abnormality in outline is consequent to either mechanical obstruction or to inflammatory changes in the tissues. Hydronephrosis, when present, consequent to stone in the renal pelvis, is not, as a rule, extensive, but is usually confined largely to the distention of the individual calyces. Practically every renal stone, whether in the cortex or pelvis, will be accompanied by more or less dilatation of the pelvis or individual calyces consequent to inflammatory retraction. These changes will vary from that of moderate pyelitis to the marked deformity resulting from pyonephrosis. Often the changes in pelvic outline are consequent to both mechanical and inflammatory influences. Not alone will these changes appear in the pelvic outline as the result of stone, but, in consequence of either present or previous infection, more or less inflammatory dilatation of the ureter will also be found. Occasionally the inflammation and dilatation in the ureter may be more pronounced than that in the pelvis and of considerable value in determining the intrarenal situation of a doubtful shadow. In a few instances only inflammatory changes were found to accompany renal stone and were so slight as to be of no value in the interpretation; whereas, in previous years, exploration for renal stone was not infrequently made with negative findings at operation. In the last 58 surgical explorations for kidney-stone made at the Mayo Clinic, stone was found in every instance. This

degree of accuracy was made possible largely by means of pyelography.

As a rule, it is comparatively easy, by means of pyelography, to localize stones which are distinctly in the cortex or in the pelvis. It may be difficult to determine whether stones at the end of calyces can be removed through the pelvis or cortex. As a rule, with a shadow merging with the end of the calyx, nephrotomy, rather than pyelotomy, will be indicated, and an area of cortical softening is often found adjacent requiring drainage.

Coincidence of Renal Lithiasis and Other Abdominal Lesions.—When the symptoms of renal stone become acute the presence of other abdominal lesions may easily be overlooked and be the cause of subsequent confusion. It should not be forgotten that an individual may have two abdominal lesions, as well as one. The presence of both nephrolithiasis and cholelithiasis was proved in 9 patients operated on during the past five years in the Mayo Clinic. The clinical symptoms may be quite definite in suggesting the two separate conditions. Even though the presence of renal lithiasis is evident, if a previous history of pain referred definitely to the right subcostal margin and accompanied by gastric symptoms be elicited, the gall-bladder should be explored before removing the stone. With cholelithiasis and left renal lithiasis, localization of the pain is usually widely separated, which renders the diagnosis easier.

When a diagnosis of a gall-bladder lesion, as well as a renal stone, is evident, attention should be first directed toward the condition which causes the most acute symptoms. It must be remembered that lesions of the kidney may cause reflex gastric disturbance, though possibly not as frequently as lesions in the gall-bladder, appendix, and duodenum. Indefinite radiation of pain, and reflex gastric disturbance due to lesions of the kidney, may be erroneously attributed to a diseased condition in the gall-bladder or appendix. Not infrequently *mild reflex gastric symptoms* exist for several years before acute symptoms of the etiologic renal stone bring the patient to the surgeon. Subacute and chronic appendicitis is frequently found associated with renal lithiasis. When the pain with renal stone is persistently referred to the right lower abdomen, or when the pain has been referred to that quarter for some time prior to the appearance of pain referred to the region of the kidney, the appendix should first be explored and removed, if necessary. Calcareous deposits in the appendix are frequently found present with renal lithiasis. Symptoms suggestive of intestinal obstruction occasionally appear with severe renal colic. Several patients have been observed who had been explored for evident obstruction before coming under our observation. In one case, a colostomy had been done for evident intestinal obstruction. Even though the existence of renal or ureteral stone has been definitely demonstrated, if other symptoms definitely suggest another abdominal lesion, an intraperitoneal exploration is justified before removing the stone. It is quite evident that the diagnosis of renal lithiasis is so intimately related to, and so often associated with, disease in the adjacent organs that it becomes largely a matter of abdominal diagnosis, and should be made by one who has had considerable experience in that field.

Perinephritic infection resulting from renal stone occurs more frequently than is generally believed. It may be a chronic process, as evidenced by the cicatricial thickening of the tissues and pads of inflammatory fat that frequently are found about the pelvis and kidney. Frequently the perinephritic involvement is acute, and the purulent distention of the perirenal tissue causes severe and continued pain. Long-continued pain with kidney stone lasting over a period of a week or more, is often indicative of perinephritic abscess. The patient may bear the occasional renal colic of short duration, but a severe pain persisting over a period of a week or more, often brings him to the surgeon. Neither a perinephritic mass nor an enlargement of the kidney is necessarily felt on examination, and but a small pocket of pus may be found at operation as the cause of the severe symptoms.

Bulging of the perirenal tissues or tumor was noted in but a small number of cases. Perinephritic infection is found more frequently with cortical than with pelvic stones. A large branched stone filling the pelvis is occasionally complicated by perinephritic infection, which may be the first clinical evidence of the existence of the stone.

Value of Urinalysis.—Visible hematuria was given as a symptom by 141 patients, or 56 per cent of the total. It occurred with *typical renal colic* in 106 cases, with *indefinite pain* in 24 cases, and *without any pain in 11 cases.* Every case of visible hematuria, therefore, even though pain be indefinite or entirely absent, should be radiographed, regardless of other symptoms. Blood

was found microscopically in the urine of 228 patients, or 91 per cent of the total. In 500 consecutive cases examined routinely in the office who had neither symptoms nor any clinical evidence of kidney lesion, microscopic blood was found in the urine in 146, or 28 per cent. It is found so frequently in the urine as the result of a variety of causes that its presence cannot be regarded as of much practical value. The presence of a few red-blood cells in the urine should not influence us in the interpretation of a doubtful radiographic shadow. Their presence without pain or other symptom suggestive of lithiasis, would not necessarily require a radiographic examination. *Pyuria* as a subjective symptom is not of so much practical value, because patients usually confuse the physiologic sediments in the urine with that of pus. The only way to determine the cause of apparent cloudiness in the urine is, of course, by means of microscopic examination. Microscopic pus was found present in the urine of 232 patients, or 93 per cent of the total; however, as with microscopic blood the examination of the mixed urine, particularly in the female, will show the presence of microscopic pus in many cases where neither kidney-stone nor any other lesion of the kidney exists. Microscopic pus in the urine, although suggestive of lithiasis, is not at all indicative of its presence. On the other hand, the absence of microscopic pus, while unusual with kidney-stone, cannot be relied upon to exclude it. It is perhaps unnecessary to add that the discovery of small amounts of albumin in the urine is of little or no practical value in the diagnosis of stone.

Functional Tests.—It is frequently quite difficult to estimate the functional capacity of a kidney containing a stone and to determine beforehand whether the kidney is to be removed or only lithotomy is indicated. When, on cystoscopic examination, the urine from the affected kidney appears cloudy and diminished in amount, one may infer that but comparatively little renal function remains. It is remarkable how often the urine becomes clear and normal in amount after the stone is removed when cloudy urine was previously seen coming from the affected kidney. On the other hand, the urine from the affected side may appear to be comparatively clear on cystoscopic examination, and at operation widespread destruction of cortical tissue may necessitate nephrectomy. When the pus becomes caseous and oozes out of the meatus only on massaging the kidney we are usually safe in inferring that nephrectomy is advisable. Not infrequently on meatoscopy no urine will be seen coming from the ureters on the affected side for many minutes, often ten or fifteen. Ineffectual peristalsis of the meatus or continuous contraction may be seen during this period, which is probably best explained by reflex contraction from cystoscopic irritation in a ureter rendered irritable by the stone. One might easily interpret this evident cessation of secretion as due to renal destruction. Stone in the kidney will usually cause marked diminution of functional activity, as demonstrated by the various functional tests. Thus with phenolsulphonephthalein, which permits of a comparatively accurate functional estimate, with many cases of renal stone but one-half of the amount of the dye was returned from the affected kidney as compared with that of the normal kidney. This would lead one to infer that but one-half of the kidney's function remained, and, therefore, nephrectomy might be indicated. In operating on these patients the kidney was often found but slightly diseased, and after operation the normal functional activity returned. This is an example of the fundamental weakness of all chemical renal functional tests; namely, that functional activity of the kidney can be quite definitely ascertained at the time of examination, but not so its functional capacity when normal conditions are restored. However, the functional test has several elements of value, which should not be overlooked. In cases where there is a total absence or mere trace of phthalein return from the affected kidney, a nephrectomy is usually indicated, even though the urine appears comparatively clear. Again, in cases in which the question arose as to whether or not a shadow was intrarenal, a marked comparative diminution of functional activity on the side in question would be suggestive of renal involvement. Although the majority of stones in the kidney will cause more or less comparative diminution in functional activity, occasionally no material difference will be found between the two sides. Equal functional return would not, therefore, exclude the possibility of stone.

MEMBRANOUS SORE THROAT*

By S. A. Keller, M. D.

SIOUX FALLS, S. D.

Sore throats characterized by the presence of a membrane have a varied etiology, and it seems both scientific and practical to classify them from a bacteriologic standpoint. Such a classification will be followed; and while it does not take into account the very common mixed infections, it must be borne in mind that while a pure culture of a single germ from a sore throat is exceptional, one organism will, as a rule, predominate, the resultant infection corresponding practically with that type.

Streptococcic tonsillitis occurring in epidemic form has attracted considerable attention in recent years. That this disease is generally either milk-born or milk-bred has long been known. This fact, as well as its epidemic character, was early noted in England, where the appropriate name of "septic sore throat" was given it. The earlier descriptions in this country do not mention milk-infection, but emphasize the probability of germ-carriers.

In 1911 occurred the Boston epidemic, in which there were over a thousand reported cases with forty-eight deaths. The incidence of the disease with infected milk was clearly proved. Early in 1912 occurred the epidemics of Chicago and of Baltimore, adding greatly to our knowledge of this disease.

It was noted that the streptococci were frequently found in pairs and capsulated, and this led to the supposition that the germ dealt with was a pneumococcus. Rosenow showed, however, that it was a streptococcus differing from the ordinary streptococcus pyogenes in having a capsule and not forming chains, and he was able to modify the streptococcus pyogenes by cultivating it in milk so that it assumed the form of that taken from the sore throats. The presence both of a mastitis from which streptococci could be obtained in some of the dairy herds and a tonsillitis among some of those handling the milk left a doubt as to which was primarily responsible for the infection.

The clinical features of septic sore throat have been marked in severity, both in the immediate symptoms and in the complications, and the mortality-rate appears to be above that of diphtheria. The onset is usually sudden, with chill, muscular pains, extreme prostration, high fever and pain on swallowing. An interesting feature was the slow pulse; it is stated that a pulse-rate of 40 with a temperature of 102° was not uncommon. In fulminant cases death occurred in 48 hours, but prolonged severity was especially common. Cases showed profound septicemia for three to four weeks. A markedly severe adenitis was the most frequent complication. Other complications were otitis, nephritis, endocarditis, pneumonia, meningitis and peritonitis, the latter causing many deaths. Clinically, the throat presented a diffuse redness with as a rule a grayish membrane resembling diphtheria on the tonsils. In some the appearance did not differ from an ordinary follicular tonsillitis.

While sporadic cases of extreme severity have been reported from time to time, streptococcic tonsillitis occurring endemically as we ordinarily see it is in no way the severe infection described above. In a considerable percentage there is a mixed infection with the ordinary types of staphylococci; in fact a pure culture of streptococcus is probably the exception, but we are apt to find that the clinical features will correspond with more or less accuracy to the predominating organism. When the streptococcus predominates, as we might expect, the symptoms are much more marked, from the tendency of this organism both to spread to the adjacent parts and to infect the general system. Fever and prostration are much more pronounced. Pain in the neck is a common symptom, usually due to the adenitis, which is always present, but there may be brawny induration and inflammation of the deep cellular structures. Laryngitis and edema of the glottis are occasional complications. There is a diffuse redness of the throat with the formation of a white or grayish exudate, which lines the crypts, often showing a tendency to coalesce and more rarely spreading to the pillars and pharynx. The disease seldom lasts over a week and is very rarely fatal.

A purely staphylococcic infection is commonly mild in character, running an uncomplicated course of three or four days. The membrane is commonly limited to patches, which fill the crypts and do not coalesce.

The angina of scarlet fever is a streptococcus

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or a mixed infection. A purely pneumococcic infection of the throat appears to be a very uncommon condition. In acute cases the disease does not differ greatly from the streptococcic sore throat. The onset is likely to be sudden with chill and high fever, as in pneumonia. The membrane shows a tendency to spread generally throughout the pharynx. If the course is sufficiently prolonged, there is ulceration of the mucous membrane. The tendency to a chronic course, noted at times, distinguishes from the streptococcic and staphylococcic infections. It may in these cases extend over a period of several months.

Sore throat caused by the influenza bacillus has been noted. Other bacteria have also been mentioned in connection with membranous sore throats, and no doubt they frequently complicate the infection.

The infection of the throat commonly known as Vincent's angina is characterized by a more or less superficial necrosis of the tissues, with the formation of a pseudomembrane. The causative germs are a spirillum and a fusiform bacillus, and both of these organisms are usually found, although it is considered that the two germs are identical. The disease is undoubtedly contagious. The bacillus fusiformis can also be found in noma, as well as other ulcerative processes.

It is possible clinically to distinguish two types, an acute and a more or less chronic form, although they often merge into each other. The acute form may resemble diphtheria, with sudden onset, difficulty in swallowing, pain, headache, chills, fever, and enlarged cervical glands. The absence of fever has been frequently noted. The tonsil is most commonly attacked, but a general stomatitis is often present. A fetid breath is a constant symptom, and the odor is said to be characteristic. The acute form is likely to run a mild course of a few days to two weeks, with superficial ulceration, which may heal under very simple treatment. It may, however, assume a decided virulency or merge into the chronic type.

This form is characterized by single or multiple ulcers, which may involve only the tonsil or spread to the soft palate, gums, and cheeks, rarely the larynx. A gray, yellow, or brownish pseudomembrane covers the area and reforms when removed. The course may extend over months, with but slight symptoms, and the general health little affected. Complications are rare. In appearance the throat closely resembles syphilis. These chronic cases are often stubbornly resistant to treatment.

While cases of acute ulcerative tonsillitis without a causative germ have been described, it seems reasonable to classify these with Vincent's angina.

Tuberculosis of the pharynx is either a complication of a chronic pulmonary infection or a part of a general miliary tuberculosis. In either case it points to a fatal termination within at least two or three months. The symptoms are those of the accompanying disease in an advanced stage, with the local manifestations adding greatly to the suffering of the patient. Pain is usually present and may be constant, or aggravated by swallowing to the extent that feeding may be impossible. Infiltration of the soft palate may allow the passage of food into the nose. The ulceration commonly begins on the soft palate, spreading to the pillars and pharynx, rarely the tonsils. It may invade the larynx. The necrosis is superficial, not sharply defined from the surrounding tissues and covered with ropy mucus. Its progress is slower than the course of the underlying disease itself. Miliary tubercles are sometimes seen.

Syphilis of the oropharynx may be present as the primary lesion, mucous patches, or gummata. A typical chancre of the tonsil is evidenced by a greatly enlarged and reddened tonsil projecting into the fauces, distinctly indurated, and crowned with a superficial ulceration of grayish color. The cervical glands are enlarged and tender. The condition may or may not be painful. Secondary symptoms appear early. When the onset is comparatively sudden with fever, the diagnosis from some of the types of sore throat mentioned is likely to be diffiicult.

The mucous patch on its first appearance is commonly quite characteristic; a small milk-white area without loss of tissue, multiple, and often distributed symmetrically; present on the soft palate and pillars and often on the tonsils, tongue and other parts of the mouth. Aside from their extreme sensitiveness, they are not accompanied by symptoms. They sometimes persist as superficial ulcers.

Gummata in the throat break down to form an ulcer quite rapidly. The ulceration may be superficial or may produce the deep destruction of the later stages. The superficial ulceration of syphilis is very common on the tonsil and pillars. It is usually oval in shape, sharply de-

fined though shallow, surrounded by an inflammatory area, and often covered with mucopus. It is not likely to be painful except during deglutition.

Pharyngomycosis is characterized by the presence of small white spots or patches, in which are constantly found the mycelial threads and spores of the leptothrix buccalis. The etiology appears to be doubtful, as the germ itself is not considered to be the direct cause. It has been explained as a hyperkeratosis of the faucial mucous membrane. The patches are found chiefly in the crypts and on the tonsillar surface, spreading sometimes to the surrounding tissues. They may be pin-point in size or grouped to form larger areas. They are usually hard, warty in character, and removed with difficulty, often leaving a bleeding surface, but there is no tendency to ulceration. The disease is chronic and practically without symptoms. It may occur in otherwise healthy subjects and may recur regardless of treatment.

Malignant disease in this locality may at times resemble an ulceromembranous sore throat. In epithelioma of the tonsil, ulceration begins early. The ulcer is deep, with overhanging edges, irregular, and with a granular surface coated with a white or grayish-white secretion, and surrounded by a reddened area. Infiltration of the surrounding tissues produces a density which is readily palpated. Extension of the process takes place into the soft palate, tongue, and cheeks. Hemorrhage is frequent, from erosion of blood-vessels. The usual symptoms of cancerous cachexia appear early. Sarcoma of the fauces shows but little tendency to ulcerate.

Herpes of the fauces and pemphigus limited to the throat are among the rare conditions that need only be mentioned. Diphtheria has been purposely omitted.

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DISCUSSION

The President: We have a good deal of this sore throat over the country, and it is probably not very frequently diagnosed.

Dr. B. C. Murdy (Aberdeen): In connection with this paper I want to say that many times we have cases come under our observation which at first are very difficult to diagnose. It is very hard to tell whether they are diphtheria or not, and many times we waste valuable time by not giving antitoxin and waiting until we have arrived at a definite diagnosis. We recently had an epidemic in our community in which three members of the same family were taken with sore throats, one after the other. In the first case there was no heaviness of the membrane, but the sore throat seemed to invade the middle ear and also the glands of the neck. In the second case there seemed to be somewhat of a membrane, which resembled the true diphtheritic membrane, and the patient was put under quarantine and a culture sent to the city laboratory, which was returned questionable, and that was negative, but that culture was not taken until after we had given the antitoxin. Whether or not the case was diphtheria, as we decided to call it, I believed we should quarantine. At any rate, the other members of the family were not allowed to come in contact with this case. The case was peculiar in that there were some symptoms and some manifestations of the infection in three different cases. It started with an inflammation of the throat and involved the middle ear and glands of the neck. The inflammation in the throat and glands of the neck subsided after three or four days.

These patients got along very nicely, but it was thought well to give antitoxin; and in a great many of these cases I think it is a good thing to give antitoxin before we are really sure we have diphtheria to deal with rather than to run the chance of having our patients develop a serve toxemia incident to diphtheria.

Dr. G. A. Landman (Scotland): In making laboratory cultures I have found that these organisms did not prove positively to be diphtheria, but oftentimes the physician will go to the laboratory and say this is a positive case of diphtheria, and that the membrane and everything else were typical, and still, on repeated cultures, we were unable to find positive diphtheria.

In connection with this subject I wish to say that we had an epidemic in Milwaukee in 1912. The author of the paper mentioned the onset of the disease. They had what we call the hematogenous streptococcic form, which would invade the circulation almost immediately following the onset of the disease, and particularly would the peritoneum become involved. I remember very distinctly eight cases were reported as having been operated on for appendicitis, the abdomen was opened with absolutely no infiltration or other inflammatory changes of the appendix, but just a mild amount of inflammation and infiltration about the peritoneum. Three of these patients died suddenly, and the five other cases died five or six weeks following operation.

Dr. S. A. Keller (closing the discussion): Some of the types of sore throat mentioned are undoubtedly rare, but the majority of them we are likely to run across at any time, and these cases the general practitioner will see more frequently than the specialist. As I remember, I saw a good many more of these sore throats when in general practice. Of course, we are not, in this day, going to make a positive diagnosis simply from the appearance of a sore throat, and we should invariably have the assistance of the laboratory. These patients depend upon us for some immediate opinion, and for that reason the clinical features are of importance.

I was in hopes that Dr. Rosenow would remain so that he might tell us of his work in this connection.

REFRACTION BY THE GENERAL PRACTITIONER*

J. A. Hohf, M. D.

TRIPP, S. D.

The consensus of opinion among physicians seems to be that the fitting and ordering of glasses for diseased eyes by anyone excepting a regularly licensed physician is pernicious; because to prescribe glasses is as much a medicine for complaining eyes as digitalis is for a diseased heart. The pharmacist, because of his schooling and training, is far more competent to prescribe digitalis than the optician is to prescribe glasses, and yet he is not allowed to do so.

There is no more reason why a diseased eye should be treated by the uneducated and unskilled than a diseased nose or throat; indeed, the condition of the nose and throat is often the key to the disturbed state of the eye, and the relation between the eye and nose should be understood by every refractionist.

While there are many opticians who are doing very creditable work in refraction and satisfy their patrons entirely in perhaps the majority of cases, which is the object aimed at on the part of any refractionist, yet this is no valid reason why they should look after the eye-defects of the people. In many cases the so-called optician or optometrist has very little or no education beyond the ability to read and write, and does not understand even the rudiments of optics.

Then there are many cases in which the manifest error of refraction can not be determined without a cycloplegic, because of its variableness, owing to a variable change in the nervous state of the patient. Personally, I could not get along without cycloplegics,—not because I use a cycloplegic in every case, but I do use one in many cases.

In order to be able to prescribe glasses intelligently and correctly, it is necessary, first of all, to master the subject of refraction. (I would say right here that there is no branch of medicine more difficult to master than that of refraction.) Then it is necessary to make a correct physical diagnosis to determine if there be some underlying cause of the trouble and if glasses are all that is needed, or if some local or systemic treatment should be combined with the glasses to relieve the patient. In these requirements the optician is obviously not qualified; he cannot make the proper diagnosis of general diseases that impair vision. In these conditions glasses would not only not help, but would actually injure the eye and also permit the patient to go without the proper treatment for a systemic disease that may destroy vision entirely or prove fatal by neglected treatment. I have in mind the toxic amblyopias; glaucoma, especially the simple or chronic form; retinitis due to some general affection or kidney disease, tumors, hemorrhages, etc.

Some men believe that the most potent way of getting rid of the optician is to make laws prohibiting him from practicing, but if this were done who would do the refraction? For obvious reasons the laity cannot all go to the specialist, and if the jeweler, the optician, the so-called optometrist, and the spectacle-peddler were forced from the field then the most logical conclusion is, that the general practitioner should do the refraction.

The whole trouble is, that refraction has been hitherto almost wholly neglected by the family physician. Aside from the removal of specks from the eye and the occasional prescribing of an eye-water, the general practitioner does not consider that the eyes demand any of his attention; moreover, he is indifferent to the fact that many general ills of his patients could be relieved by devoting proper attention to the eyes. There are many nervous functional disorders that can be permanently relieved only by correcting existing eye-defects. While my experience does not extend over a great many cases I have made a number of observations in which glasses relieved my patient of a nervous strain, and the patient was made happy by them.

The eye is a highly specialized organ and even in an emmetropic condition requires a tremendous amount of nervous energy to meet the demands of perfect vision. Only those having experienced eye-trouble can fully appreciate this fact. While it is true that some people can go through life with a very marked error of refraction and be not at all inconvenienced or aware of the fact, yet others having the same amount or even less will have all sorts of symptoms. This is especially true of those whose nervous condition or general health is poor. The principal eye-defect herein alluded to is hyperopia in its various forms of astigmatism and muscular

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asthenopia. We also find that lower degrees of myopic astigmatism cause much trouble in the way of nervousness and impaired general health. In hyperopia when the eye attempts to accommodate, in order to overcome the hyperopia, the internal rectus will contract, and if the patient has not the nerve-energy to control the external rectus, the eye will turn in, or tend to turn in, and the strain involved in preventing it from turning in is exhausting to the patient. It is not infrequent to have patients complain of nausea and even vomiting when they put their eyes to any considerable use, and headache from eye-strain is a very frequent complaint. I believe the majority of headaches are due to eye-strain.

In the physiology of vision there are two distinct requisite muscular acts that take place in each eye, namely, the refractive or focusing and the directive. Through the action of the intrinsic muscles of the eye the object is focused upon the retina; and through the action of the extrinsic muscles the eye is directed toward the object to be viewed. Now, in order to obtain binocular single vision there is a third process to consider: in looking with both eyes the muscles of one eye must work with those of the other in such a way that the visual lines of the two eyes intersect in the object of fixation. The two functions, refractive and directive, must go hand in hand so that with each definite degree of refraction there is associated the required amount of directive force that belongs to it. By directive action I mean not only the parallel associated movements of the two eyes, but also the movements of convergence that are required in looking from a distant object to a near one.

The normal binocular single vision is maintained through the resultant of varying amounts of innervation, which are supplied to the individual muscles and distributed among them in proper proportion. If there be a disturbance in the muscular equilibrium then binocular single vision becomes impossible, or is maintained by such strained or forced effort as most individuals cannot endure very long. This is especially true in one lacking in general nervous stability brought about by some debilitating disease or an inherited tendency.

The limits of this paper will not permit an extended discussion of the subject matter of refraction, for its primary object is to direct attention to its importance, and if the general practitioner will take it up and make it a serious study he will find it of vital importance in his general practice of medicine and profitable financially. This applies especially to those located in the smaller towns where there is no resident oculist.

DISCUSSION.

Dr. H. J. G. Koobs (Scotland): I am obliged to say that my views on this subject are not entirely in accord with those of Dr. Hohf, when he says that all refractive work should be done by the general practitioners. He has told you that it is not an easy matter to refract some eyes properly, and that is correct. We all realize the importance of proper optic refraction, I am sure. We realize the morbid influences on the general nervous system of certain errors of refraction, ordinarily called eye-strain, these being the cause of headaches, vomiting, and various other nervous manifestations, and which need the careful diagnosis of an optical expert.

Again, there are the simple cases of presbyopia which need glasses in order to read, and where it is no trouble to fit them with spectacles. All they need is a magnifying glass to overcome the defect in the crystalline lens, or, rather, the lack of elasticity in that organ. So, fitting glasses for one case is not fitting glasses for all cases. To require a man to be a physician, in order to fit glasses to a case of presbyopia, is, in my estimation, almost as absurd as it would be to require a man to be a physician to fit a pair of shoes. I am quite sure you can do as much harm by an improper shoe as you can by an improper glass in presbyopia.

Optometry is a study by itself. It is one of the sciences, and unless the general practitioner will take up that study in particular, he is not qualified to fit a difficult case of refraction, and the question comes, how many practitioners are willing to do that? Surely, there are not many who have done so in the past. The average practitioner is not a good refractionist, and to make laws to prevent anybody except a physician from fitting glasses would, at the present day, be unjust. If the general practitioner will take the initiative and qualify himself thoroughly in that respect and pass an examination in it, then there will be some sense in the argument.

The diagnosis of an error of refraction does not depend upon the determining of any diseased condition of the eye as a rule, but an inherited anomaly of the structure; that is, if we have a case of hyperopia, for instance, we have a physical defect in the eyeball; it is too short in its longitudinal axis. The reverse obtains in myopia. In astigmatism there is a physical defect in the cornea. These are matters that can be figured out by anybody who has given the science of optics attention, and it does not need a knowledge of pathology, and I really believe anybody who has studied that science will be qualified to refract.

The question of whether or not anybody but a physician should use a mydriatic is quite another matter, and where it is necessary the patient should be referred to a physician specialist as long as the general practitioner has not taken up the subject of refraction thoroughly.

In my opinion the fitting of glasses cannot, with justice to all, be restricted to the physician at present. It would doubtless be best if all physicians would

properly qualify themselves, but until they do, the work should be done by anyone who has properly qualified himself, and may be done by anyone who is not a physician when no diseased condition of the eye or its adnexia exists and where no mydriatic needs to be used.

Dr. H. H. Frudenfeld (Madison): I want to say a few words in regard to this paper and on the subject of refraction in general.

There are a great many medical refractionists who say that a mydriatic is necessary in every case, and I know there are some very good oculists who have that opinion; but, while my experience has not been as extensive as that of some, at the same time my opinion differs. There is a public prejudice against the use of a mydriatic, and the physician who uses it in all cases for the purpose of refraction creates a prejudice against his work among the public. It is not always necessary that it should be used. The more experience one has in correcting errors of refraction, the less he thinks of using a mydriatic. So far as the general practitioner's using a mydriatic in every case is concerned, he should understand the dangers of it. Many cases of glaucoma are aggravated by the use of atropin and homatropin. One should be cautious about using any drug in the eye which is dangerous in wrong cases.

So far as headaches are concerned, the majority of them are caused by lack of glasses, but there are some headaches which glasses do not relieve. Let us take a headache that a patient complains of when he first wakes up. It is not usually a headache that is caused by an error of refraction. There is not much harm in treating some cases by fitting glasses, but there are cases of commencing choroiditis, or changes in the retina, or the early stages of glaucoma which may be recognized by a competent oculist. Suppose one has a case of commencing choroiditis. The vision is cloudy, and the patient may secure glasses that fit properly for a year, and they may give so much relief that he will neglect a worse condition. That is the danger in fitting glasses wrongly. Pathologic conditions are often neglected because they are relieved by glasses.

Dr. R. D. Alway (Aberdeen): I have enjoyed the doctor's paper, although I cannot altogether agree with him. I recognize that there are many different opinions on this subject. I believe the oculist is the only person capable of doing good refraction.

The opticians, like the osteopath, the Christian Scientist, and the chiropractic, are with us, and I do not believe we can legislate them out of business.

In regard to the general practitioner's doing refraction: He can do it, but unless he has enough to keep him fairly busy he will soon be doing poor work, and the average practitioner has not the time. He will succeed with his presbyopes and simple cases of hypermetropia, but when it comes to the cases of myopia and muscular imbalance, unless he has the time—and it requires lots of time—he will not get results.

Dr. P. R. Burkland (Vermillion): There is one point I would like to make, and it is this: I do not think the medical profession is justified in referring patients to an optician. It is true, we have them with us, and we cannot get rid of them, and some of them do good work,—good enough for some purposes,—yet they make some terrible mistakes, and we ought not to put the stamp of approval upon opticians as a class.

Dr. H. T. Kenney (Pierre): In regard to optometry: I would like to say that the reason we have no good or capable eye, ear, nose, and throat practitioner in every locality where we should have one, is because every practitioner is trying to do more or less eye, ear, nose, and throat work. In Pierre we very much need an oculist, a man who can do high-class eye, ear, nose, and throat work. We cannot get such a man because there are half a dozen practitioners doing what I would call very poor work, and a good man cannot live on that account. The trouble with medical men is, that they allow men to do the work who are incapable of doing it as it should be done.

Dr. J. A. Hohf (closing the discussion): It may be true that the general practitioner will never become a successful refractionist. There may be a good many cases, if he undertakes the work, that he does not feel competent to handle, but he will at least be able to recognize these cases that he does not feel capable of handling and will refer them to the proper specialist. The optician is not inclined to do that. He is not inclined to refer his cases that he cannot handle. As a matter of fact, he does not recognize the pathologic conditions that should be handled and treated by the specialist.

With regard to the use of cycloplegics: I believe the longer one does refraction work, the more he can get along without them; but there are cases where it is absolutely necessary to use cycloplegics. Those who have done any work of this kind know this to be true. My idea is that these cases that require refraction, that need glasses, should pass through the hands of the general practitioner, and not through the optician. We have all met incompetent opticians. They are all over the country. We find young fellows who have taken a two or three weeks' course somewhere in this line of work, and they are, in the first place, incapable, because of their limited education, to understand what they are doing. I find refraction a difficult subject to comprehend. There are young fellows, jewelers, who go away and take a two or three weeks' course and start in fitting glasses, and because of their limited education are utterly incapable of understanding what they are doing. So I believe that it would be far better for people who require glasses to go to an oculist.

By the way, there are a great many people wearing glasses who ought not to wear them. If these people should pass through the hands of a general practitioner and he should feel incompetent to refract them, he can refer them to the proper specialist to do the work for him, and then he knows it will be done in a satisfactory way.

THE OPTOMETRY EVIL*

By G. Golseth, B.S., M.D.

Jamestown, N. D.

While we assemble to confer on questions of science to alleviate the ills of mankind which ultimately conserve human energy and life, our detractors, who are many, day after day, by innuendo, questionable statements in the public press, and corrupt practices in our legislative halls, are busily engaged in a determined effort to sway public opinion in their favor to the detriment of the public health and our professional position in the minds of the laity, and to wrest from us vested rights secured to us under the Medical Practice Act. I refer to such fads as osteopathy, Christian Science, chiropractice, and optometry; and it will only require the ingenuity of some fakir to devise some new line of treatment, for example, radiography, to overwhelm the populace with some new cure-all.

I am convinced, that, as a class, physicians do not place the proper value on their medical degree, nor do they seem aware of the rights reserved to them through the Medical Practice Act, and the license, issued to them by the State, to practice their profession. It is not a question of proficiency in one kind of work. A court of law would not permit a man to practice because he had perfected himself in everything pertaining to, let us say, contracts. He must be a lawyer capable and qualified in all branches of law. Likewise none should be permitted to take up any line of medical work, no matter how proficient he is, unless he shall have fulfilled all the requirements of the Medical Practice Act, which in this state means that the person must be a graduate of a first-class high school, must have had at least two years of college work, and must be a graduate of a medical school requiring at least four years of eight months each.

In order to facilitate the discussion of this subject, it may be well to see what the optometry standard is in this state. Under Article 16 and Section 324 of the Revised Code of North Dakota for 1905, we read: "Optometry is the employment of subjective and objective mechanical means to determine the accommodative and refractive states of the eye and the scope of its functions in general, and the applying of lenses as correctives." Under Section 328, we find the qualifications as follows: "Such person shall furnish to the Board satisfactory proof that he is a graduate of some school of optometry, or that he has practiced optometry for two full years as a student practitioner under the supervision of a regular optician, or has practiced as a regular optician for two full years outside the state." I say shame upon the legislature which, for these qualifications, legalized these lens-grinders and jewelers to prescribe for such a delicate organ as the human eye. But they are not satisfied to be called opticians. A great many of them parade themselves as "optical specialists," "eye-sight specialists," "doctors of optics," etc. They want the public to believe that they are eye specialists, and, from my experience, some of them have obtained this desired goal, because former patients of those optical specialists always say, "Dr. So-and-so."

This law licenses an optician to prescribe for conditions which can be recognized and treated only after years of study and training in medicine, and has legalized the doing of an irreparable injury. Under the provisions of this law, practically any man who has made and ground glasses for a period of two years, can be licensed as a refractive optician. Under this license, without even a smattering of medical knowledge, he can prescribe for the eyes of a man who is suffering from Bright's disease or from rheumatic troubles, which diseases, and others also, directly affect the eyes, although he knows nothing about the particular disease or the general principles of anatomy, physiology, and pathology. Moreover, this law not only licenses a host of incompetents, but it takes away from them all chance of prescribing correctly. Under the provisions of the law, opticians are not allowed to put drops into their customer's eyes. It is the almost unanimous consensus of opinion among the text-book writers and ocular authorities that the majority of individuals, under thirty-five years of age, cannot have their eyes accurately measured for glasses without the use of a mydriatic.

By allowing non-medically trained persons to prescribe without this safeguard, inaccurate and harmful measures are legalized by statute. It is the province of the optician to grind lenses in accordance with the prescription of a trained doctor. He has no more business to prescribe for diseases of the eye, or to attempt to treat abnormal conditions of the eye, than has a shoe-

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913.

maker or glovemaker to treat diseases of the feet and hands. The average druggist is far more competent to prescribe digitalis than the optician is to prescribe glasses, yet very few people suffering from some heart or kidney disease would think of having their druggist prescribe for them.

In order to show the false statements and pernicious methods employed by these fakirs, I have but to quote from a pamphlet distributed from house to house in Denver by a local firm of opticians. With the circular was left also a pamphlet issued by the American Optical Association, entitled, "The Conservation of Vision and Modern Optometry," which repeatedly laid stress upon the claim of modern optometry to accurately correct optically defective eyesight without the use of drugs. The pamphlet contained a number of quotations from leading American ophthalmologists, and its arguments were presented under such headings as the following: "The use of drops is the optical novice's method," "The use of drops must be abandoned," "Optics is not taught in any American medical college," and "one ophthalmologist in a hundred knows how to prescribe accurate glasses."

With twenty-seven states having optometry laws, there is no true optometry school in the United States, except that at Columbia College, New York City, which, while catering to the demand created by the optometry law, opened such a school, soon recognized the viciousness of the principle, and declines to issue a degree even after the student has taken the full course of two years. Only recently the most ardent advocate of the cult, Dr. Prentise, of New York, has issued a statement that he has finally come to the conclusion, "that the only true scientific course is to study medicine." The reason for this change was undoubtedly due to the fact that a year subsequent to the passage of the Optometry Act in New York, a survey showed that sixty cases of eye diseases leading to blindness and death had been overlooked by opticians in the City of New York.

In my own practice I often find cases fitted by opticians so badly that it is enough to make demons laugh and angels weep. It is not uncommon to find a high degree of hypermetropic correction when it should have been astigmatic, or to find myopic lenses when they should have been hypermetropic lenses. I have had cases treated by opticians for a period of two years, by changing the lenses every three months, and on examination I would find choroiditis, glaucoma, etc., but most of them too advanced to do much for, and the sad verdict was, it might have been otherwise.

The purpose of this paper is to endeavor to explain to the general practitioner that it is his personal duty, to himself, to his patients, and to the medical profession, to oppose, in every possible way, the entrance into the medical profession of those who are not medically trained, and who would practice on the body as a whole, or specialize on any particular organ. General practitioners can assist the cause of the medical profession if they will instruct their patients in the difference between an examination of their eyes by a specialist, who is a doctor, and by the optician or jeweler, who parades under the new name of "optometrist," "optical specialist," or "eyesight specialist," and has in most cases only taken a few weeks' instruction from some correspondence school of optometry.

In conclusion, let me say that the correct fitting of glasses is no small task, because it requires a good knowledge of anatomy, physiology, retinoscopy, ophthalmoscopy, and advanced physics; yes, more than this,—it requires a large experience and good judgment, and without this knowlege by the examiner, the patient may be started or continued on the road of bad health and a ruined career.

DISCUSSION

Dr. C. S. Crane (Grand Forks): I have listened with a great deal of interest to the paper of Dr. Golseth, who is endeavoring to bring some results out of chaos, at the same time heaping up for the oculist a great deal of adverse criticism. To many this subject means very little. Many physicians refer their patients to the jeweler or optician. Unfortunately for the great mass of people, they live long distances from oculists, so they are compelled to depend upon their jeweler or druggist or some person handling glasses to get the glasses fitted, as they cannot spend the time or money to go to the city. Undoubtedly this optician does the very best he knows how, but when it comes to knowing anything about the diseases of the eye, or the effect of other diseases at remote portions of the body, of course he is lost. Barnum said the people liked to be humbugged, consequently, if you pick up a weekly paper, you will find Professor Hardcash will examine your eyes, treat them scientifically, and grind glasses while you wait. He also makes the plea that he does it free. Now, for practical philanthropy, we have no other class of people that can reach the point of competition with them. They examine eyes free, but they do not fail to charge you as much as the oculist does for glasses. If he wishes to continue his philanthropy, why does he not furnish the glasses and frames at actual cost? And when you hear the many stories told by unfortunate sufferers who have been told they had a cataract when

it is some kidney disease or atrophy of the optic nerve, one wonders how the jeweler, the self-styled specialist, has the nerve to continue in business. But the law sustains him, and he has just as much right as you and I to fit glasses to everyone that comes as grist to his mill.

Endeavor to legislate against his business, and the person who should be thankful that laws were being made for his protection will rush to his aid and will punish the would-be interferer with his personal rights. Many opticians are so bold that they push the sale of eye-drops of one kind or another. Suppose you do have on your statutes provisions preventing their so doing. If you have them arrested they demand a jury trial, are declared "not guilty," and are permitted to go on with their prescribing. Doctors cannot stand on the street corners and declare themselves opposed to the indiscriminate fitting of glasses by jewelers and their assistants, nor can oculists take up the fight in the papers. If they did the public would instantly declare that it was due to professional jealousy; that the doctor was not getting enough to do, and was outclassed by Mr. So-and-so, the skillful eyesight specialist, who grinds his own lenses.

From what I have said I am sure that you are anxious to know what remedy, or method, I would suggest to bring the practice of optometry, if you so choose to call it, back to the proper channels. The fitting of glasses is not at all analogous to that of dentistry, much as the opticians would have you wish to believe. If a dentist, or a physician even, permits a tooth to decay, to be lost, suppose it has to be removed. People in this case do not suffer to any great extent, but let one eye be neglected or improperly treated, then that person's entire life is affected by it. If by any chance you lose two teeth, then that is not such a calamity. Let two eyes be lost and that person is indeed most unfortunate and to be pitied.

What I would suggest as a remedy would be the passage of suitable laws governing the practice as closely as possible. But my plan would be not to spend any great amount of time fighting for new laws, but let every physician take up the study of fitting eyeglasses, and with your knowledge of the human structures, its defects and diseases, you could soon have the public educated to go to a physician for all their work in that line. As you strengthened your position in this, so could you be of far more influence in getting needed legislation along medical lines. You could equip your office with the necessary instruments, and they would add just that much more to your local prestige. The young doctor just starting out in the practice would soon find that this would be a very pleasant addition to a rather meager income. He would also find that he would have to keep a record of his cases. This would teach him to be more methodical in all his work, which means better work in all cases. From your study of the eye it is natural to suppose that fewer cases would fall to the oculist, but he would have the support of the physicians, just as he now has, and I cannot see that he would be any worse off than now, especially with many dozens of opticians fitting and misfitting many hundreds and thousands of cases yearly.

Then, in conclusion, let me advise, first, that all physicians fit themselves so they can care for all persons requiring the use of glasses. Secondly, get the people educated and have protective laws passed.

Dr. A. D. McCannel (Minot): The paper of Dr. Golseth pleased me very much, especially as I learn from it just what the laws of the state are. I had not looked into the optometry law of this state, but I think all physicians will recognize the injustice it is to the public in general, permitting the optician to fit all who come along. We will grant that an optician can fit a great many cases, and give fairly good results, but the average optician does not know his limitations, for we find that they put glasses on every case that comes along. I had two cases last week that brought home to me the evils of the optometry law, after reading the announcement of Dr. Golseth's paper, and it made me think of his paper a little more. One woman, aged 35, came to me complaining of suddenly going blind four days previously. She was wearing a pair of —9.00 spherical glasses fitted by an optician, and her glasses had been changed frequently by opticians. She had worn them from childhood and had never been given any advice. She had not been told to avoid strain, overexertion, and so on. The result was that five days before I saw her she was helping her husband to clean grain with a fanning mill, and the next morning when she awoke she could not see out of one eye, and the other one was partly gone. Upon examination I found both retinæ detached and sight practically gone.

Another man came in the next day complaining of headaches. He had been fitted two years ago, and was wearing a pair of +1.00 glasses. He was quite a healthy-looking individual, but I examined him the next morning and found a most marked albuminuric retinitis. He had fairly good vision in the right eye, having 6/6 vision, the macular region being clear, but the left macular region was involved. His urine showed a large amount of granular casts and of albumin. His blood pressure—the apparatus I had would not register it—it ran over 300 mm. This case no doubt would have been recognized by an oculist, and proper treatment would have been commenced two years ago.

Dr. Blake Lancaster (Crosby): From the point of a general practitioner, it appears to me the more you try to do for the dear people the more you get kicked. Personally I am in favor of letting them take their medicine.

Dr. Golseth (closing the discussion): If the hour was not so late there is a great deal I would like to say, but, personally, I am quite enthusiastic about this. I have listened to the paper on the fracture of the femur, this afternoon, but that affects only old people, as a rule. This affects the young people, and I know a number of cases of professional men whose careers were ruined on account of ill-fitted glasses. They had a certain amount of strain they did not realize, and they have been treating away, trying to get along, studying hard, I can think now of several cases whose careers have been absolutely ruined. I am talking about men studying for the different professions who, on account of the strain, became nervous wrecks.

DIAGNOSIS OF GASTRIC ULCER*

By W. F. Bushnell, M. D.

ELK POINT, S. D.

In choosing a subject upon which to write a paper for this meeting it was my desire to write on some disease in which the early diagnosis is often overlooked, in fact, too frequently overlooked, by the average man of medicine. While pondering over the matter a patient came into my office, and, having examined, I found the subject of my paper, namely, "Diagnosis of Gastric Ulcer." This patient had been suffering for sometime, had been to a number of physicians, and had invariably come away with the diagnosis of "stomach trouble."

The point in this paper that I wish to make clear and bring out is the necessity of making a diagnosis in all forms of gastric disorder, for by so doing it will almost always protect the patient from serious complications and consequences. When we recall that statistics show that latent ulcers are discovered in from five to fifteen per cent of all autopsies, we must realize how many patients miss the benefit of correct diagnosis and proper treatment. I believe that the general practitioner is more prone to neglect the diseases of the stomach than those of any other organ of the human body, consequently it will be my desire to emphasize the necessity of such diagnosis and to bring out a few diagnostic points regarding the ulcer of the stomach in its earlier stages, as well as the differential points.

The subject of gastric ulcer is perhaps time-worn, and exhaustive papers have been written upon it by eminent men, but my foregoing explanation is my excuse.

In making a diagnosis of this disease we must take into consideration the possibility of the following diseases and disorders that make it difficult to make the diagnosis clear, namely:

Gastralgia or gastric hyperesthesia,
Gastric crises,
Hepatic colic,
Cirrhosis of the liver,
Chronic gastritis,
Duodenal ulcer,
Gastric carcinoma,
Appendicitis,
Chronic pancreatitis,
Intestinal neurosis,
Arteriosclerosis of the stomach.

Gastric ulcer occurs most frequently in the female, or about 60 per cent. Some authors claim that it is present in 5 per cent of all mankind. It attacks especially the young from fifteen to twenty-five years of age. Occupation also tends to further the disease, as shown by its frequency in seamstresses, cooks, cobblers, or people following an occupation that causes them to be in a stooped position.

And now at this point I wish to emphasize the necessity for getting a complete and thorough history, for there is no surer foundation on which to base the facts that go to make up a correct diagnosis. It is exceptional indeed for such a history not to point the way toward further investigation, which will reveal the true malady. It may seem tedious and commonplace to both patient and physician to lay stress upon such points as age, occupation, general habits of diet, previous health, etc., but neglect of one detail may distort the clinical picture and lead the diagnostician very seriously astray. When the patient first comes for aid he is complaining of a bothersome dyspepsia and constipation, the sense of burning in the throat, regurgitation of acid liquids and acid gases in the mouth, loss of appetite, and loss of strength, together with emaciation. As these symptoms are more or less present in other stomach disorders, it is necessary to study the case in detail.

I now wish to call your attention to the study of pain, which is a constant symptom, and I believe that in the character of the pain and its peculiarities in this disease we have the most important means for making a diagnosis.

First. We find that it is localized in the epigastrium, radiating to the shoulder and back, to the left of the median line, near the twelfth dorsal vertebra.

Second. The pain is excited by the taking of food, begins in about ten minutes afterward and increases until the stomach is emptied either by vomiting or the passing of the food into the duodenum. When it first develops it is a dull ache, a burning or gnawing sensation, increasing until it becomes a distinct lancinating pain.

Third. The pain is not present when stomach is empty.

Fourth. The pain is influenced by position, as

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

lying on the back or abdomen. This is often an indication of the location of the ulcer.

Fifth. The pain is influenced by ingestion of highly seasoned or indigestible foods.

Sixth. The pain of ulcer occurs earlier in the stage of digestion than that of hyperacidity.

Seventh. The pain is always intermittent and never constant.

Eighth. The pain is increased by giving of acid substances and alleviated by alkalies.

Vomiting.—This is a more or less constant symptom of a chronic ulcer. It rarely occurs in an acute ulcer, and when it does occur it does not relieve pain. Vomiting takes place shortly after eating or during the crisis of the painful attack. It is not attended by retching, and it invariably gives relief.

Hemorrhage.—Hemorrhage occurs in about 10 per cent of the cases. When this symptom is present it is easy to make the diagnosis clear. It occurs most often in acute ulcer and is characterized by its suddenness, profuseness, and its rapid cessation. When it occurs in chronic ulcer it does not come on so quickly, it is not so profuse, and it does not stop as readily.

Anemia.—Suddenly developed without any obvious reason anemia should lead one to examine the stools and suspect a slowly bleeding point. Anemia in cases of gastric ulcer has always impressed me so strongly that I always make an examination of the stools when going over my patient for any suspected disease of the stomach when it is present. There is also a reduction in the number of the red-blood cells, as well as in the hemoglobin. The skin and mucous membrane are pale, and there are evidences of emaciation. The abdomen is scaphoid, and the tongue is glazed and coated at its center. Buccal mucous membrane is sometimes dry; at other times a hypersecretion of mucus may be present. It is possible in some cases to localize the ulcer by the area of tenderness. If the case is of very long standing there is present a thickening of the pylorus, which may be determined by palpation. There is also in these cases a dilatation of the stomach.

We have some distinct characteristics in gastric ulcer given to us by the laboratory man, but I believe one ought to go slowly in the use of the stomach-tube in suspected cases of ulcer. However, as vomiting is most always present it is easy to get a specimen of the stomach contents. The vomitus will be found to contain blood, both macroscopically and microscopically, although in varying degrees. It also displays excessive hyperacidity, due to the presence of free hydrochloric acid, although I wish to state that the free hydrochloric acid is less, or almost entirely absent, just before and following a hemorrhage.

Now, briefly, let us call to mind the diseases and disorders as well as the characteristic points of difference from ulcer. It is these conditions that so many practitioners are content to call "stomach trouble" and prescribe for empirically.

Gastralgia, or, as sometimes called, gastric hyperesthesia.—This condition is present in the neurasthenic temperament. It never comes on before the twentieth year and most frequently about the menopause. There is never any blood in the vomitus. Pain is usually present when the stomach is empty. Vomiting comes on immediately after taking food and does not give relief. Tenderness is present over the entire epigastrium and the left hypochondrium, especially the left breast.

Gastric Crises.—Occurrence of lightning pains, ocular symptoms, and absence of knee-jerk are indications sufficient to distinguish the disease from ulcer.

Hepatic Colic.—Sudden onset and sudden termination of the pain, swelling and tenderness of the liver and engorgement of the gall-bladder, and jaundice, when present, are helpful in clearing up the diagnosis.

Cirrhosis of the Liver.—The ascites, hardened and palpable liver. Hematemesis sometimes occurs in this condition, and when it is present there is a history of intemperance and discomfort after meals, and nausea and retching in the early morning. In cirrhosis we most always find hemorrhoids which have a tendency to bleed.

Chronic Gastritis.—The pain is not so severe as in ulcer. The tenderness is diffuse, but pressure does not excite actual pain. Hydrochloric acid is most usually absent. There is rarely, if ever, any presence of blood in the vomitus. Vomiting occurs irregularly. Emaciation and anemia are absent.

Duodenal Ulcer.—In this type of affection we are at a loss sometimes to differentiate it from gastric ulcer; however, with careful study of the pain and other conditions present we can arrive at a satisfactory diagnosis. The pain in duodenal ulcer is found referred to the right hypochondrium. It occurs two to three hours after meals, and taking of food does not excite discomfort. There are sudden and recurring

intestinal hemorrhages. Jaundice, when present, is indicative of the presence of the ulcer in the duodenum. If melena is present without hematemesis it is a strong diagnostic point in favor of this form of ulcer. Duodenal ulcer is rather a rare affection as compared with gastric ulcer.

Carcinoma of the Stomach.—This condition is more common in men, and seventy-five per cent of the cases occur between forty and seventy years of age. This disease represents a steady degree of progress, the pain being more and more intense from week to week and accompanied by increasing weakness and loss of flesh. There is a steady decline of the appetite. Pain is present when the stomach is empty; in fact the pain is continuous. Radiation of the pain is not characteristic, as in ulcer. Vomiting occurs late in the disease, and when it occurs it is two to four hours after eating. The coffee-ground vomitus is of course a distinct characteristic of carcinoma. As the most common region of the stomach affected is the pylorus, we have then dilatation of the stomach to a marked degree, much more so than in the thickened pylorus of gastric ulcer. There are presence of lactic acid and absence of hydrochloric acid.

Appendicitis.—There is no reason why one should confuse this condition with gastric ulcer; however, in chronic appendicitis we have so frequently all the symptoms referred to the stomach that it is well to consider the affection when summing up the diagnosis. There is a history of former attacks and of pyrexia. Localized tenderness in the region of the point known as McBurney's is usually a factor sufficient to make a diagnosis.

Chronic Pancreatitis.—Symptoms of this develop suddenly, the pain is deep seated, and tenderness is not severe on deep pressure. Hiccough is more or less constant in this condition. Intermittent attacks of diarrhea, fever, faintness, and anxiety form a group of symptoms that strengthen differential diagnosis. The presence of fat in stools and a positive Cammidge reaction in the urine clinch the diagnosis of chronic pancreatitis.

Intestinal Neurosis.—The chief characteristics of this intestinal disorder are, that it occurs in young nervous hypochondriacal persons. The pain which follows the ingestion of food resembles that of ordinary colic, being referred to the umbilical region and appearing to cross the abdomen from right to left. Vomiting is rarely present. During the attack there is often an urgent call to stool, although an actual evacuation seldom occurs. There is usually tenderness on pressure on the course of the transverse and descending colon, but not over the epigastrium. Constipation is almost invariable. Pain in the colon is usually relieved by pressure upon the abdomen.

Arteriosclerosis of the Stomach.—This is a condition recently studied in connection with disorders of this organ. It may be confused with gastric ulcer. While it may develop in the young, it is usually found in those past middle life. The differential diagnosis is the location of arteriosclerosis elsewhere in the body with symptoms of circulatory disorder. Administration of drugs that are beneficial in arteriosclerosis clears up these gastric symptoms.

In writing this paper it was not my aim to teach you gentlemen anything about these conditions, nor to tell you anything new, but simply to bring before your minds the necessity of making a distinction between the various disorders and diseases of the stomach, as the symptoms are so completely intermingled. If one gives the subject the consideration that it deserves it will not only help him, but it will be the means of preventing serious complications in his patient. It will also assist in doing away with many stomach-washing quacks who are doing a thriving business at the present time.

DISCUSSION

Dr. F. A. Spafford (Flandreau): Dr. Bushnell has gone over the subject of the symptoms and signs and differential diagnosis so completely that I can add very little to what he has said. However, I would like to impress upon the general practitioner in connection with this subject the necessity of carefully going over the history of these cases. If any of you have been fortunate enough to attend the private clinics of Cohnheim, in Berlin, you will know how much stress he lays upon the fact of getting a careful history of these cases, and how much stress he lays upon the anamnesis. He makes the statement that in 70 per cent of the cases he can make an accurate diagnosis from the history alone. So it is up to the general practitioner, or to those of us who see these cases first, to recognize them. When we consider the large number of cases of gastric carcinoma that are engrafted upon a previous ulcer of the stomach, you can readily see that if we would cure cases of cancer of the stomach, we must be early in our recognition of the symptoms.

We have with us today a gentleman who has probably had as extensive experience in the surgical treatment of gastric ulcer as any man in this section. I would like very much to hear from Dr. Knott, of Sioux City.

Dr. Van Buren Knott (Sioux City, Iowa): I have enjoyed listening to Dr. Bushnell's paper very much,

and I think it is very timely. I am sure you will all agree with the opening statement that these cases of gastric ulcer are too frequently overlooked. In other words, patients are treated symptomatically, and no effort is made to establish definitely a diagnosis.

The remarks of Dr. Spafford are eminently true so far as the value of the history is concerned in cases of ulcer. It has been my experience that the history given by the patient is much more reliable in making a diagnosis of ulcer of the stomach than either the laboratory or the physical findings in a large number of cases, take them as they come. Our experience with the laboratory findings in cases of suspected ulcer has been very discouraging and very disappointing. There is no question but that a large percentage of cases of ulcer of the stomach are neglected, and that chronic ulcers terminate in carcinoma. It has been established in the large clinics that from 65 to 75 per cent of the cases of carcinoma of the stomach are implantations on old ulcers. You can therefore recognize the extreme importance of an early diagnosis. Ulcer of the stomach is being treated earlier today than it used to be. Years ago gastro-enterostomy was done, and in a very few cases the ulcer was excised. The ulcer is removed today to rid the patient not only of the immediate effects of the ulcer, which are distressing, but of the after-effects, which are frequently disastrous, that is, terminating later in carcinoma.

Too many cases of ulcer of the stomach, as has been said by Dr. Bushnell, and as I have said before, are simply treated as cases of indigestion or dyspepsia, whatever either of these terms may mean. Those who are familiar with autopsy work know that the post-mortem changes which occur in the hollow viscera are not at all similar to the conditions found in life. For that reason our knowledge with reference to diseases of the stomach has been very greatly added to, and made definite from the fact that a larger number of cases come to operation; but, notwithstanding that fact, there are not as many cases of gastric ulcer operated upon today as there should be. There are many of these cases in all communities,—no more in South Dakota than in Minnesota; and no more in Minnesota than in New York,—and these are being neglected all over the United States, although much has been written and said upon the subject of ulcer of the stomach. In the majority of cases the diagnosis can be made from the symptoms and the history alone; nevertheless the cases are overlooked, and the importance of this subject cannot be too frequently emphasized.

Dr. Daniel V. Moore (Yankton): Dr. Bushnell's paper is very praiseworthy indeed. Gastric and duodenal ulcers are double-first cousins, and either may simulate the other very easily. It is not an uncommon thing for the clinician to observe either of these ulcers masquerading as the other ulcer.

Perhaps the most fascinating theme during the present epoch in surgery is the etiology of this class of ulcers. Mr. Moynihan, of Leeds, England, stated that most gastric and duodenal ulcers are preceded by trouble in the appendix or cecum. Dr. Robert T. Morris, of New York, in discussing the same subject, urges, in harmony with Mr. Moynihan's suggestion, that more light be cast upon the bacteria of the upper digestive tract. After all, it seems there are practically five cardinal considerations which the diagnostician should keep well in mind when trying to secure evidence against these offenders: First,—Food and pain relation. Second,—Periodicity, which has been so classically referred to by Dr. Christopher Graham, of Rochester. Third.—Conservative estimation and interpretation of hematemesis, not forgetting gastrotaxis. Fourth.—The dehydrated countenance so often seen with the duodenal ulcer, as pointed out by Dr. William J. Mayo. It may not be entirely inappropriate to refer to the duodenal facies as the prairie-fire fighter's face. Fifth.—To bear in mind that the pain from gastric ulcer is almost always situated in or referred to the left of the body's equator.

Dr. Bushnell (closing the discussion): I have nothing further to say except to thank the gentlemen for their discussions of my paper.

PRIMARY INFLAMMATORY TUMORS OF THE CECUM*

By Arthur A. Law, M.D.

Associate Professor of Surgery, University of Minnesota Medical School

MINNEAPOLIS.

The literature is rich in descriptions of carcinoma of the cecum, and of tuberculosis of this bowel, both the ulcerative and hypertrophic types. Actinomycosis of the cecum has been carefully studied, while diverticulitis here, although very rare, is reported, as are the specific infections in more detail.

The tumor herein described has nothing to do with any of these, but is a primary inflammatory growth, benign in its pathology, cecal in its origin, usually circumscribed, and frequently accompanied by intramural abscess; nevertheless it demands as radical surgical interference as do the neoplasms.

In the older text-books much was written twenty or more years ago about typhlitis and perityphlitis. With the increasing knowledge and study of appendicitis and its pathology these terms were more rarely used, the newer nomenclature of the diseases of this region supplanting the older terms.

A closer study of the scattered cases reported, however, reawakens an interest in a condition which has a definite pathological picture, aside from the one presented by appendicitis and entirely separate and distinct from it. The tre-

*Read before the Minnesota Pathological Society, Nov. 19, 1912.

mendous prevalence of the appendicular pathology has obscured this much rarer disease of the cecum until there are observers who deny its existence, affirming that the appendix is always primarily responsible for the inflammatory disease of its parent, the cecum. Deaver asserts that "the appendix is always the original seat of trouble in acute inflammations of the right iliac fossa."

There can be no question but that in the vast majority of cases the appendix is the primary seat of inflammation, which by direct continuity extends to the caput coli. The rarity of this disease of the large bowel is emphasized by Einhorn, who, out of 18,000 autopsies, found typhlitis and perityphlitis due to appendicitis in 91 per cent of them, while primary disease of the

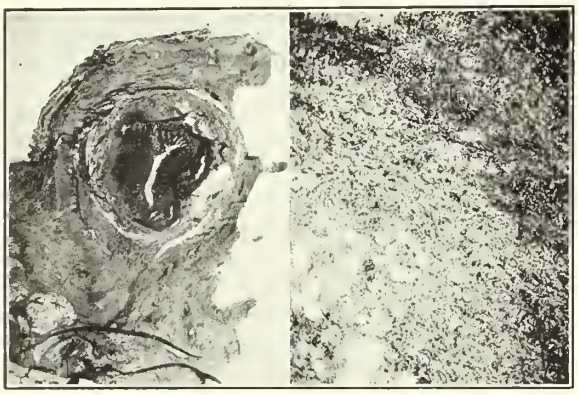

Fig. 1. Section through base of appendix. Fig. 2. Section through tumor.

cecum made up the remaining 9 per cent. Treves puts the percentage of the primary cecal disease even lower still. Reisinger reports 350 operations for typhlitis and perityphlitis, and in only two instances was the cecum alone diseased.

Most clinicians have repeatedly observed involvement of the cecum as a direct association of an inflamed or gangrenous appendix. Here the disease has its inception by extension from the appendix to the cecum. The peritoneum of the gut is first involved; then the submucosa and mucosa in succession.

In contradistinction, primary typhlitis has its beginning in the mucous layer of the bowel, and the appendix has no etiological bearing upon the disease. The arguments of the men who deny the occurrence of primary typhlitis are refuted by the reported cases of competent observers. Kukula, Lanz, Sich, Polya, Feltz, Reisinger, Bittorf, Nauwerk, Bozzi, Jordan, Wilmans, Brickner, and McWilliams each report one, while Thomas, Hemmeter, and Einhorn report two each, or nineteen in all. In each instance these observers reported that the appendix was normal.

In a study of the etiology of this disease many factors must be taken into consideration: the anatomical situation of the cecal cul-de-sac; its dependent position; the fact that it is a reservoir with distensible walls and of considerable capacity; also that this gut has the thinnest walls of any of the bowels. We know that here, or in the neighboring large bowel, 50 per cent of all the fluids and 10 per cent of the solids of the bowel contents are absorbed. Again, this bowel is infested with the most virulent bacteria, while it is here that the bowel contents become acid, whereas before they have been alkaline, a significant fact to be considered when we remember the relationship between gastric and duodenal ulcers and hyperacidity.

Admitting that the impaction of solid feces in the cecum is much rarer than some observers would have us believe, it still does occur, as evidenced by tumors which disappear upon cleaning out of the bowel; furthermore, surgeons occasionally, in operating, palpate solid masses in the cecum. We must, therefore, accept the condition known as coprostasis and recognize it as a factor in the production of disease in this bowel.

It is conceivable that particles of food and foreign bodies may enter the cecum with some violence, propelled by the peristaltic wave of the ileum, and that these bodies may abrade the mucosa, giving an opportunity for infection to occur.

In two instances masses of intestinal parasites have produced a primary typhlitis, as reported by Schiller and Blanchard. A more common factor in the production of coprostasis, is membranous pericolitis, where obstructing bands distort and partially obstruct the ascending bowel, interfering with peristalsis, aiding in the distension of the cecum, and inviting the impaction of feces here. Visceroptosis and cecum mobility, as well, may be a contributing cause. "Jackson's veil" and visceroptosis are generally coincident. The antiperistaltic waves described by Cannon are factors to be considered in this condition.

Probably stercoral ulcer of the mucosa of the cecum is the most frequent cause of typhlitis. An abrasion or injury of the membrane by a foreign body, overdistended gut walls from impacted feces with local pressure and anemia from the same; a mechanical and chemical irritation resulting in inflammation of the mucous membrane

at a focal point where infection enters, followed by venous thrombosis, edema, capillary hemorrhage, or the phenomena of infection with ulcer as an end-result.

This may remain superficial and be limited to the mucous membrane, or it may extend until necrosis involves all the coats of the bowel, and perforation occurs, with resultant general peritonitis. Or, if the process is more deliberate, a localized peritonitis with adhesions and abscess may result. These ulcers may become chronic, as do the ulcers in the stomach and duodenum, and result in an inflammatory hyperplasia of tissue. They may undergo malignant degeneration, or may heal with resultant scar-formation, cicatricial contraction, and deformity of the bowel.

Diagnosis of these primary inflammatory tumors of the cecum is uncertain. A mass may be palpated, but its differentiation from malignancy, tuberculosis, actinomycosis, appendicular abscess, adhesions, diverticulitis, or impacted feces, is difficult or impossible. Hints as to its import may, of course, be gathered from the symptoms, blood-picture, analysis of the stools, *x*-ray pictures taken after a bismuth meal, or the injection of the colon with the same.

By exploration alone can we expect to clear up the diagnosis, and even then it may be manifestly impossible to differentiate clinically between the different neoplasms, tubercle bacilli or simple tumors, until the post-operative evidence of the pathologist and his microscope is given. Were it possible to take a portion of the tumor and at once have a pathologist's report from a frozen section, the operative interference might be dictated, but no surgeon is warranted in excising a portion of bowel tumor and endangering his operative field from infection. Observers agree that, whatever the neoplasm, it should be removed, if operable, and an anastomosis done.

Considering the ease with which the cecum and colon are mobilized by splitting the outer leaf of the mesocolon, and taking into consideration the meagre lymphatic supply of this bowel, we understand why there are 50 per cent of five-year cures following removal of malignant tumors of the large bowel. Occasionally, these inflammatory masses may be so large and so adherent to adjacent organs that it is unwise to attempt their removal, as instanced by a case reported by Erdman of New York, who simply short circuited the ileum and sigmoid. The tumor disappeared, and the patient was well at the end of four years.

That primary inflammatory tumors of the rest of the large bowel, and especially of the sigmoid, occur with relative frequency, is attested by numerous reports. It is extremely probable, however, that the majority of these bowel phlegmons are incident to diverticulitis, although this condition is not demonstrated clinically or microscopically. Phlegmonous inflammation of the wall of the stomach has been reported in 91 instances. Its clinical appearance simulates the condition herein described. It has its origin usually from stomach ulcer, and a mortality rate of 98 per cent.

The case I have to report illustrative of this type of cecal tumor occurred in my service at the University Hospital and is as follows:

C. B., male, American, laborer, married, aged 35, was referred by Dr. O. O. Olson, of Minneapolis.

Family History.—No malignancy nor tuberculosis in family.

Personal History.—Habits good, sleeps well, appetite good, uses alcohol and tobacco moderately, and denies venereal history. Previous diseases, those of childhood. Had typhoid at eight years of age, also malaria as a child.

Present Complaint.—Last February he had attacks of pain, which started in the epigastrium and migrated to McBurney's point. He vomited and became very tender at McBurney's region; and has had pain more or less constantly ever since, from the caput coli up along the colon and under the ribs on the right side. He now has pain and tenderness and a palpable mass at the head of the colon. He is constipated and has a great deal of gas. There is no occult blood, but an increase of mucus in his stools. His urine is negative. There are no tubercle bacilli in his sputum; von Pirquet test is negative. His hemaglobin is 100; his leucocyte count is 13,400; and the polymorphoneuclears, 62.8 per cent. Wassermann reaction is negative. He has an evening temperature of 99°.

Diagnosis.—Chronic appendicitis, with adhesions and possible abscess.

Operation, Sept. 12th, 1912.

A mass the size of an orange was found in the cecum, invading the mesial and posterior wall of the gut. The mesocolon was markedly thickened and nodular. The appendix was free except for about two centimeters next its cecal origin, which was adherent to the tumor; its lu-

men was patulous. Extensive membranous pericolitis was present, the bands of which markedly distorted and fixed the ascending colon. Clinical diagnosis of carcinoma or hypertrophic tuberculosis was made. The "Jackson's membrane" was dissected free, ligated in sections at its origin on the parietal wall, and removed. The outer leaf of the mesocolon was split, mobilizing the cecum and ascending colon. The ileum, three inches from the ileocecal valve, was crushed with an augiotribe, ligated with catgut in the crush, and a linen purse-string suture was introduced. The bowel was amputated with the cautery blade, and the stump inverted and purse-string tied. The same procedure was followed through the large bowel two inches above the growth. The purse-string suture here, however, was re-inforced with a row of Halstead linen sutures. The mesentery of the ileum and colon was ligated and removed near its root, thus removing the involved glands. A typical lateral anastomosis of the ileum and transverse colon was done by the suture method and the use of Roosevelt forceps.

This man made a good recovery. A bismuth meal and skiagraph revealed the competency of his anastomosis before he was discharged.

It was impossible clinically to positively determine the nature of this tumor, and even with the pathologist's report which follows, we cannot affirm that this tumor was not one of the diffuse tumors incident to cecal diverticulitis, although the extreme rarity of this condition, but two cases being reported, would seem to preclude such an assumption.

REPORT OF PATHOLOGIST

Clinical diagnosis: Chronic appendicitis (?) and malignancy of cecum (?).

Tissue: Cecum and appendix 9 cm. in length. Posterior wall of cecum greatly thickened. 3 cm. of proximal appendix is attached to cecal wall by adhesions. On section of mass in posterior wall several pockets of pus are located, containing in all about one ounce. Smears made from pus showed leucocytes and bacteria, the latter being both bacilli and cocci. Cultures were made, resulting in a predominating thick Gram bacillus. The walls of the abscess are firm and hard, and from 1 to 3 cm. in thickness.

Microscopic: Frozen sections showed dense fibrous connective tissue infiltrated by polymorphonuclear cells and lymphocytes. Some small local abscesses are noted. Celloiden sections show the same condition.

Microscopic diagnosis: Chronic abscess. No evidence of malignancy or tuberculosis in section studied.

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MINNESOTA STATE MEDICAL ASSOCIATION

The meeting of the Minnesota State Medical Association held in Minneapolis, October 1, 2, 3, was unusually well attended. There were between 400 and 500 registered on the books, an unusually large registration. This attendance was evidently due to the excellence of the program and particularly on account of the papers presented by Dr. E. C. Rosenow of Chicago, "On the Etiology of Rheumatism and the Lesions of Experimental and Human 'Rheumatic' Myositis," and also the paper by Dr. George W. Crile of Cleveland, Ohio, in which he explained his kinetic theory. Both of these papers will be published in the subsequent number of the Journal-Lancet, and will probably be read with interest. Dr. Rosenow is a very easy speaker and he talked in a very simple and plain way so that every one went away with the impression that they had learned something of the forms and varieties of rheumatism caused by demonstrable bacilli. Our readers are urged to look over his paper very carefully, as it will explain many of the obscure causes and pathology of so-called rheumatism. It is evident that one may be able to demonstrate the various streptococci which are responsible for heart and joint lesions, and it also determines the curable from the uncurable varieties.

Dr. Crile in his surgical oration cited his experiments in a large number of cases in which he made searching investigations into the relationship of the central nervous system with the suprarenal gland and the thyroid gland. He opened up a new theoretical field, at least, for speculation, which should be of great assistance to both physicians and surgeons.

There were various other interesting papers on the program which ought to call for special mention but, as they will be published from time to time with the discussions, it hardly seems advisable to analyze them at the present writing.

The meetings began on time and ended on time with all the papers read and all the clinics given. No one seemed to feel the strain of the long series of papers and the program committee illustrated again the necessity of having a program which can be digested and assimilated without weariness.

President Hill's address was one of historic interest in which he related the early experiences, trials and plans of the medical association which in later years bore such good fruit.

The social side of the Association was limited to the banquet at the Commercial Club on the evening of October 2d. There were more than 250 guests present and the entertainment and speeches of the evening were of the usual order and interest. The Committee of Arrangements representing the Hennepin County Medical Society also demonstrated the success of a so-called dry banquet. The toastmaster alluded to the grape-juice-Bryanesque drink which took the place of anything stronger, and if one judges from the attendance and the interest shown in the festivities this mild form of dissipation was not unwelcome. It was shown again how doctors can get together and have a perfectly respectable dinner without committing any breach of ethics or stirring up an over-sensitive temperance contingent.

The introduction of 7 clinics on the last afternoon was a happy thought and should be a larger feature in all future medical society meetings.

The women of the Auxiliary of the Hennepin County Medical Society entertained their visitors and themselves at a luncheon at the Leamington. An automobile drive about the city and a tea at the Society rooms concluded the afternoon's entertainment.

The House of Delegates had very little busi-

ness this year other than the routine work and the election of officers, the results of which are as follows:

President, Dr. A. E. Spalding, Luverne.

First Vice-President, G. S. Wattam, Warren.

Second Vice-President, Dr. A. W. Ide, Brainerd.

Secretary, Dr. Thos. McDavitt, St. Paul.

Treasurer, Dr. Earl R. Hare, Minneapolis.

Medical politics seemed to have dropped out of this year's work. The elections were free from unpleasantness. The next meeting of the Association will probably be held in St. Paul.

MINNESOTA STATE SANITARY CONFERENCE

The usual annual meeting of the Minnesota State Sanitary Conference took place in Minneapolis, October first, and occupied the entire day. The attendance was larger than in former years and the interest very much greater. It is quite evident that physicians, medical health officers and sociologists are giving more attention to sanitary problems than ever before. The character of the papers was such as to attract or to stimulate vigorous discussions.

The president, Dr. A. J. Chesley, was very clever in the manner in which his program was arranged and he was evidently very considerate when he confined his papers to three main topics as follows: (a) Tuberculosis and County Sanitaria; (b) School Hygiene; (c) Infectious Disease Problems.

These meetings are of extreme importance and they bring together a class of men who need the assistance of one another and eventually they will produce an educational condition in Minnesota whereby these various sanitary problems can be more readily solved. These papers will be printed from time to time in the Journal-Lancet, at least those approved by the officers of the sanitary conference.

QUICK DRINK AND DRUG CURES

Within the last few years many signs have appeared over city restaurants announcing a quick-lunch service. The patrons rush in and gorge themselves with uncertain foods, scald themselves with over-hot and tasteless drinks and then rush back to business thinking they have saved time and money by their rapid excursions. The indigestion and other derangements of the intestinal tract which follow such pernicious and uncertain feedings produce a large number of sufferers, who have contracted the habit of quick lunches and bad digestion. These people, although they do not know it, suffer because of their hurrying and worrying and ultimately the majority of them develop into persistent invalids, or are ruined in disposition, and doubtless many of them fall under the surgeon's knife simply because they are quick-lunch fiends. Within the last few years a large number of promotors and proprietors have inaugurated a quick drink and drug cure. These institutions are scattered over the country. They advertise to cure a chronic habit within a ridiculously few days, and they accept cases without counting the conditions which led up to the acquisition of the habit. The chronic alcoholic, for instance, who has filled himself full of liquor for years, and who finally becomes weakened in will power, suffers from loss of weight or accumulates a mass of unwholesome fat, and other evidences of alcoholism, finally awakes to the fact that he must change his methods of living. The promoter is ready for him. The man is circularized until his attention is attracted to his condition or his friends intervene in his behalf. The usual go-between or "runner" is ready for the job and the victim is rushed to the nearest quick drink cure. In a considerable number of cities there are institutions which promise a cure in three days, and, in order to save all possible time, for future needs, the victim becomes a patient. He is given emetics and cathartics until he is thoroughly cleaned out and disgusted by his own eliminations. He is then told that he is cured. Perhaps he strikes some other institution in which the time has been prolonged to ten days. The cure is practically the same in each institution. The price is always the same. That is, it is never under $100.00 for a cure, and as these promoters are not out for the benefit of humanity they collect the price of the cure in advance. Some of these patients who have been through these rapid drink and drug establishments are brought to their senses by the violence and unpleasantness of the treatment and they refrain for a time from resuming the habit. Some of them perhaps are cured. They should not be pronounced cured, however, until a long follow-up system has been established and no doubt left in the mind of the investigator. The unscrupulous perniciousness of these rapid cures should concern every medical man before sending his alcoholic and drug case to an institution. He should carefully investigate its merits and the institution should be stud-

ied with the same thoroughness as if he were under the care of a regularly licensed physician. Unfortunately all of these institutions can hire a doctor and in the majority of instances they hire a man who is unsuccessful in other medical lines, but who becomes a willing and apt plugger because he is paid for his time and work. None of these men belong to the county or state societies unless they keep their occupation under cover, for they know very well that their occupation is unethical and they are simply assisting in the promotion of a fraudulent cure. It has been demonstrated thousands of times that habits of this sort are not satisfactorily cured without proper and continued medical attention.

These institutions have no trouble in obtaining a license to maintain a hospital, such as it is. They appeal to the business side of the council committees who have these things in charge. Notwithstanding the fact that the proprietors are non-medical men they appeal to the license committee on the ground that their proposition is a business one and their money is distributed in the city in which they have an abiding-place. Unfortunately no mention is made of the number of relapses that follow these rapid cures and doubly unfortunate is the fact that no mention is made of the after-result of the treatment. In three cases, which recently came under the writer's notice, these men, who had taken a 3-day drink cure, became violently insane and suffered for months from a mental condition from which their recovery is still a matter of doubt. There are unquestionably many such instances scattered over the country. Whether it is the introduction of new drugs, the use of hypodermics, of medication or the needless laxative and purgative remedies that are used and also the fact that these people have long suffered from mal-nutrition, and are not fed after they have been through the so-called cure, is a question for the physician to determine, that is, for the physician outside of these institutions. The time has come when doctors should taken more interest in these alcoholic drug cases and he should see that they are placed in proper surroundings and treated more scientifically and not subjected to violence and unnecessary medication.

If the doctors in Minnesota would investigate the scientific merits of the inebriate farm, which is delightfully situated at Willmar, Minnesota, they would see how much isolation, food, rest and environment have to do with recoveries.

Avoid all institutions that promise a cure from drink or drugs in from three to ten days. This advice, we believe, is absolutely reliable and certainly safe.

REPORTS OF SOCIETIES

HENNEPIN COUNTY SOCIETY

A regular monthly meeting of the Society was held at the Library Rooms on Monday, October 6th, with Dr. H. H. Kimball, president, in the chair, with a large attendance of members.

The report of the Board of Censors recommended the following for membership:

Dr. Lewis L. Cook, Dr. J. E. Engstad and Dr. Francis E. Hufneil.

The program for the evening consisted of papers on "Blood Vessel Surgery with Reference to Transfusion," by Dr. J. Frank Corbett; "Factors in the Production of Post-Operative Intra-Abnominal Adhesions," by Dr. A. E. Benjamin.

THE STEARNS-BENTON SOCIETY

This Society held its regular meeting Sept. 25, 1913, at Brooten, with President Sherwood in the chair, at Dr. R. T. Glyer's beautiful new residence. There were twenty present. The program consisted of a paper on "Artificial Interruption of Pregnancy," by Dr. Frederick E. Leavitt, St. Paul; "My Experience with Ectopic Pregnancy," by Dr. C. B. Lewis, St. Cloud; "A Plea for More Thorough Examination of Neurasthenics," by Carl D. Kolset of Brooten.

The members of the Society and guests were entertained and a 6 o'clock dinner was served by Mrs. and Dr. Glyer, all of which was thoroughly enjoyed. President Sherwood invited the Society to meet at Kimball next month. The meeting adjourned subject to the call of the Program Committee.

J. C. Boehm, M. D.,
Secretary.

MISCELLANY

A MASTOIDITIS OPERATION

This is the report of a desperate case of acute mastoiditis operated on for one hour and ten minutes under H-M-C.

Mr. J. A. T., age 50, white, male; occupation, baker.

Diagnosis. Acute mastoiditis. Duration, 14 days.

Patient's general condition bad. Red blood cells 4,200,000, white blood cells 14,800; hemoglobin 65 per cent.

Urine: albumin, blood cells and granular casts present; specific gravity, 1026.

Pulse, 96, weak. Heart sounds weak and indistinct.

Record of Anesthesia: Stovaine-adrenalin solution (Anesthaine) used as local anesthetic for skin incision. H-M-C No. 1 hypodermically, given one hour before operation; H-M-C No. 2, one-half hour before operation; H-M-C No. 2, 15 minutes before operation.

When incision was made through skin, patient made some noise and struggled some. He slept most of the time while the diseased bone was removed, except when some especially sensitive spot was touched. At no time was the patient not under control and there was no necessity for a general anesthetic. I was prepared to give nitrous oxide and oxygen, if needed.

Pulse before operation 96, during operation 88-84, after operation 84; better during operation than before.

The patient remembered nothing after being placed upon the operating table and awoke in his bed not knowing that anything had been done.

I have been using H-M-C as a preliminary sedative in all cases in which a general anesthetic is used, except in children. I vary the dosage according to age, weight, complexion, strength of patient and variety of operation.—FRANK GAMON, M. D., Erie, Pa.

NEWS ITEMS

Dr. S. G. Gibson, of Langdon, may locate at Fessenden.

Dr. L. A. Clarke has moved from Oakes, N. D., to Clinton, Ia.

Dr. L. A. Lane, of Northfield, Minn., has located at Faribault, Minn.

Dr. J. Bursma, of New Salem, N. D., will locate at Fessenden, N. D.

Dr. R. J. Jackson, of Mitchell, S. D., will locate at Rapid City, S. D.

Dr. Chas. J. Lavery, of Fort Pierre, S. D., has moved to Aberdeen, S. D.

Dr. Thomas, of Indiana, is planning opening a private hospital at Polson, Mont.

Dr. H. W. Miller, of Casselton, N. D., was married to Miss Mabel Gunkel Sept. 13.

Dr. Williams, recently of Rugby, N. D., has located at Perth, N. D., and they have a physician again.

Dr. C. B. Harwood, of Hope, N. D., has sold his practice to Dr. J. C. Alexander, of Tower City, N. D.

Dr. Archibald Robertson, of Litchfield, Minn., was married to Miss Mary Stewart of the same place on Sept. 17.

The Southern District Medical Association held a meeting Sept. 1, in La Moure, N. D., at the office of Dr. J. F. Brenckle.

Dr. P. M. Kellogg and Dr. Meckstroth of Wahpeton, N. D., have formed a partnership for the practice of medicine and surgery.

Dr. C. F. Lorenzen of New Leipzig, N. D., will remove to Elgin and Dr. Eugene Hamilton of Bentley will locate at New Leipzig.

Dr. S. Vinje has moved from Grand Forks, N. D., to Hillsboro, N. D., and gone into partnership with Dr. A. Anderson of that city.

Dr. G. E. Mills, of Minneapolis, was married to Miss Lydia Jensen, of Hutchinson, Minn., Sept. 13, by Rev. E. T. Scholler of Minneapolis.

Dr. J. W. Warren, of St. Paul, was married to Miss Isabel Coe, Aug. 5. They went east for an extended trip and on their return will reside at 1615 Selby Ave.

The Christian Scientists of Aberdeen, S. D., have objected to the compulsory examination of school children, but the Board of Education will not revise their rule.

Dr. F. A. Doulas will leave Fessenden, N. D., and take up advanced surgery in a Chicago college. He sold his practice to Dr. J. Bursma of New Salem, N. D.

Dr. Einer Johnson, of Bemidji, Minn., has gone to Baltimore to take a post-graduate course in Johns Hopkins University. He will return here when he finishes his studies.

The Women's Auxiliary of the Hennepin County Society gave the ladies of the members of the State Association one of the handsomest luncheons ever served at a state meeting.

The regular meeting of the River Valley Medical Association was held at Warren, Minn., Sept. 23. Papers were read by Dr. Henry Ulrich, Minneapolis. Dr. Emil Geist, Minneapolis, and Dr. O. H. Olson, Erskine, Minn.

Dr. O. A. Ordeson, of Duluth, Minn., will leave the last of this month for Europe and will spend the winter in Vienna studying. In the spring Mrs. Ordeson will join him and they will tour Europe, returning in October next.

Dr. W. C. Chambers, Blue Earth, Minn., has gone to New York, where he will take a four weeks' course at the Post Graduate School, giving special attention to surgery. Mrs. Chambers will accompany him and visit relatives in that state.

Dr. A. M. Stevens died at his home in Red Wing, Minn., Sept. 21, after an illness of a year and a half. He was 74 years old and graduated from the Chicago university and practiced in Chatfield and St. Paul, going to Red Wing in 1894.

The recent enlargement of the Minneapolis City Hospital, increasing the number of beds from 430 to 710, together with the withdrawal of student nurses when the hospital investigation began, makes it necessary to employ many extra nurses.

The Minnesota State Graduate Nurses' Association held its tenth annual meeting in the city hospital, St. Paul, Oct. 2. Mrs. E. W. Stuhr, of Minneapolis, President, presided. In the evening President Vincent of the University gave the principal address.

Plans are being made by St. John's German Lutheran Hospital Association for the erection of a new hospital to cost $60,000. A committee composed of Rev. A. C. Haase and Dr. F. J. Plondke were appointed to draw up articles for forming a stock company.

Drs. J. W. and R. N. Andrews and J. P. Rosenwald, of Mankato, Minn., have formed a partnership under the firm name of Drs. Andrews, Rosenwald & Andrews. Dr. R. N. Andrews will give special attention to the diseases of children and *x*-ray work.

Dr. O. Edward Bratrud, of Warren, Minn., has gone to McHenry, N. D., to assist Dr. LeBien with his practice for a couple of months. Dr. Bratrud is a graduate of the University of Minnesota and is highly recommended. Dr. LeBien will take a few weeks vacation.

Funeral services of Dr. Wm. H. Fisher, 3153 Columbus Ave., Minneapolis, who died suddenly, were held at Le Sueur, Minn., his old home. Dr. Fisher had lived and practiced at the home where he died for 10 years; previous to that he practiced at Le Sueur for twenty years. He was 65 years old.

Dr. Jas. Christiansen, of Alden, Minn., has sold his practice and residence to Dr. F. W. Davis, of Kasson, who took possession Oct. 1. Dr. Christiansen has enjoyed a large practice for the past 8 years and will go to Europe and take a post graduate course, after which he will locate in some larger place.

The annual meeting of the Stearns-Benton Medical Association was held at Brooten, Minn., Sept. 25. Papers were read by Dr. Frederick Leavitt, St. Paul; Dr. McDowell, Sauk Rapids, Minn.; Dr. C. B. Lewis, St. Cloud; Dr. Carl D. Kolset, Brooten; Dr. J. J. Gelz, Richmond. The visiting physicians were guests of Dr. R. T. Glyer.

Dr. S. Joseph Aspelund, aged 33, died at his home, 1906 Fremont Ave. N., Minneapolis, Sept. 27. He was a graduate from the University Medical School in 1906 and had served two years as assistant physician. He came from his birthplace at Mondovi, Wis., in 1900 and has resided in this city ever since. Heart disease was the immediate cause of his death.

The idea of medical inspection in schools by competent physicians was the theme of a discussion held at the regular meeting of the Mitchell (S. D.) District Medical society, following a paper read by Dr. F. Treon of Chamberlain on the subject, School Sanitation and Physical Development. Dr. F. W. Freyberg of Aberdeen, president of the society, presided at the meeting and also at the banquet at the Navin hotel.

Mr. and Mrs. Norton Cross announce the engagement of their daughter, Miss Clare Cross, to Dr. F. A. Kiehl, of Portland, Ore. Both were students at University of Minnesota. Dr. Kiehl is the son of Dr. David Kiehl of Minneapolis, and he is at present in Europe. Miss Cross has been teaching in Japan and is now on her way to Europe, and the wedding took place at Issley church, Oxford, England, on Thursday, Oct. 2.

The semi-annual meeting of Nicollet-Le Sueur Society was held Tuesday, Sept. 16, at the St. Peter State Hospital. The society was entertained by Dr. R. M. Phelps and Staff. Papers were read as follows: "Influenza," by Dr. G. W. McIntyre, St. Peter; "Heredity in Health and Disease," by Dr. R. M. Phelps, St. Peter; "Report of Cases of Abdominal Injury and Vesical Calculus," by Dr. R. G. Olson, Nicollet; "Report of a Case of Puerperal Septicemia," by Dr. J. W. Daniels, St. Peter.

The Black Hills (S. D.) Medical Society held its quarterly meeting on Sept. 18th and 19th at Hot Springs, and had a large and enthusiastic attendance. The Battle Creek Mountain Sanitarium entertained the society on Friday afternoon, and the wives of the members were entertained Thursday afternoon by the wives of the Hot Springs physicians. Eight unusually good papers composed the scientific program. Such meetings are worth while, and the physician who misses one of them is a loser.

FOR SALE

The late Dr. S. J. Aspelund's office fixtures, library, instruments and automobile. Everything in good shape and must be sold at once. Call or address 315 Masonic Temple, Minneapolis.

ASSISTANT WANTED

A young man for assistant. Must be Scandinavian and able to do refractive work. State monthly salary wanted. Address, for particulars, D. B., care this office.

FOR SALE

Five-room office, with first-class office furniture and fixtures, in city of 1,000 population. Practice from $5,000 to $6,000. Collections about 85 per cent. In a good farming country. City has electric lights, waterworks and sewer. Competition very light. One who can do surgery will increase practice a whole lot. In western part of North Dakota. Address O. A., this office.

PRACTICE FOR SALE

Location vacant after Oct. 1st in town of 300. No opposition. In one of the best farming districts in Minnesota. Country thickly settled. Mostly Scandinavian, and pay good and sure. For definite information address Lock Box 21, Audubon, Minn.

PRACTICE FOR SALE

I have an established practice of $4,500 in one of Wisconsin's best towns of 1,000 population. Splendid schools, churches, electric lights, sewer and city water. Practice can easily be increased by doing surgery. Am leaving state. Price, $800 for practice and office fixtures. Norwegian preferred. Address B. G., care of this office.

PRACTICE WANTED

Wanted, to buy a good unopposed or slightly-opposed practice in Minnesota or North Dakota. No real estate first year. Give full particulars in first letter. Address H. C., this office.

PHYSICIAN WANTED

Scandinavian-speaking physician to take care of my practice in a good thriving town in North Dakota during my absence of six months doing post-graduate work. A good practice, which goes to the substitute, less a small office expense. Will consider partnership after return. Must leave between Oct. 15 and Nov. 1. Address S. L., care Journal-Lancet, stating particulars about himself in the first letter.

WANTED

An interne in a 40-bed surgical hospital, on salary. Some outside practice can be had if desired. German or Scandinavian preferred. Address M. H., care this office.

INTERNE WANTED

The Northwestern Hospital of Minneapolis offers a service for two internes, preferably men or women who have been in practice for a year or two and who wish to renew their acquaintance with surgery and medicine. Perhaps some young man who has been striving to establish himself in some small country town in the Northwest will be glad to know that the hospital offers a rotary service which includes room and board, and, we hope, a small salary, which will make it more attractive. Applications should be made to the superintendent of the Northwestern Hospital, stating age, civic condition, where and when graduated. The positions are now open and an interne will be received at any time.

PRACTICE FOR SALE

A $5,000 practice in southern Minnesota; railroad town of 700; with electric lights, city water, churches, high school, four mails daily, and good roads. Collections, 95 per cent. No real estate; moving to city. Address L. M., care of this office.

PRACTICE FOR SALE

A $6,000 to $8,000 practice in a thriving modern North Dakota city of 1,800; railroad center and farming community. Price for quick sale the invoice of office equipment, about $800. Address R. O. N., care of this office.

POSITION WANTED BY NURSE

A registered nurse wants a position in a physician's office or as surgical assistant. Has a college education and possesses some knowledge of laboratory work; experienced. Address T. P., care of this office.

FOR SALE

An *x*-ray machine fully equipped for electrical and *x*-ray work. It cost about $1,000, and will be sold for $100, if taken at once; have an operating chair and an oak roll-top desk at a very low figure. Address Mrs. Mary H. McLean, Fergus Falls, Minn.

MINNEAPOLIS OFFICE FOR RENT

Dr. J. Clark Stewart offers his office in the Syndicate building for rent for a part of the day, hours to suit the tenant.

PRACTICE FOR SALE

I have a thoroughly established practice of between $6,000 and $7,000 in a fine southern Minnesota town, which I will give to the purchaser of my real estate at an investment valuation and on terms that any man can meet. The practice can be turned over to and held by my successor and easily increased. Address X. T., care of this office.

OFFICE FOR RENT

Office for dentist or doctor in the Masonic Temple, Minneapolis, with reception-room in common with two physicians. Address or call at 504 Masonic Temple, Minneapolis.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF JULY, 1913

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	6		1													1
Alexandria	2,681	3,001	1															
Anoka	3,769	3,972	5	1												2		1
Austin	5,474	6,960	6												1			
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	2												1	1		
Benson	1,525	1,677	5															
Blue Earth	2,900	2,319	2	2														
Brainerd	7,524	8,526	8												1	1		1
Breckenridge	1,282	1,840	2															
Canby	1,100	1,528	2	1														
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	1															
Chatfield	1,426	1,226	2	1														
Cloquet	3,074	7,031	5															1
Crookston	5,359	7,559	4											1				1
Dawson	962	1,318	1															
Detroit	2,060	2,807	1													1		
Duluth	52,968	78,466	74	5	3	1	1	1			1		1	1	2	6	2	5
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	2															
Eveleth	2,752	7,036	10	1				1							2			
Fairmont	3,440	2,958	0															
Faribault	7,868	9,001	8	1					1									
Fergus Falls	6,072	6,887	7		1									1				
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	2													1		
Hutchinson	2,495	2,368	1													1		
International Falls		1,487	5															2
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	4				2										1	
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	3	1	1													
Luverne	2,223	2,540	3	1														
Madison	1,336	1,811	2													1		
Mankato	10,559	10,365	12		1	1										1		
Marshall	2,088	2,152	5	1														
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	275	37	9	9	2	4			2			5	18	31	1	22
Montevideo	2,146	3,056	6											1		1		1
Montgomery	979	1,267	2													1		
Moorhead	3,730	4,840	5															1
Morris	1,934	1,685	1															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	11												1			
Northfield	3,210	3,215	2	1														
Ortonville	1,247	1,774	3													2		
Owatonna	5,561	5,658	7															2
Pipestone	2,536	2,475	3			1												
Red Lake Falls	1,666	1,666	2															1
Red Wing	7,525	9,048	11															1
Redwood Falls	1,661	1,666	3													1		
Renville	1,075	1,182	0															
Rochester	6,843	7,844	32			1										7		2
Rushford	1,100	1,011	1								1							
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	9	1		1										1		1
St. James	2,102	2,102	1															
St. Paul	163,632	214,744	186	23	2	6	4	1						2	11	9	1	13
St. Peter	4,302	4,176	2															
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	3			1										1		
Sleepy Eye	2,046	2,247	0															
South St. Paul	2,322	4,510	2													1		
Staples	1,504	2,558	1												1			
Stillwater	12,318	10,198	7		1									1		1		
Thief River Falls	1,819	3,174	2															
Tower	1,111	1,111	2	1														
Tracy	1,911	1,826	1													1		
Two Harbors	3,278	4,990	2		1													1
Virginia	2,962	10,473	14															
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	2	1														
Waseca	3,103	3,054	4															1
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	2								1							
Willmar	3,409	4,135	1													1		
Winona	19,714	18,583	14	2														2
Winthrop	813	1,043	0															
Worthington	2,386	2,385	4			1												

REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1												1			
Aitkin	1,719	1,638	1															
Akeley			0															
Appleton	1,184	1,221	1															
Belle Plaine	1,121	1,204	1	1														
Biwabik		1,690	1			1												
Bovey		1,377	2												1			
Browns Valley	721	1,058	2															
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	4								2							
Chisholm		7,684	6	1					1						2			1
Coleraine		1,613	1															1
Delano	967	1,031	2															
Farmington	733	1,024	0															
Fosston	864	1,055	2															
Frazee	1,000	1,645	1		1													
Grand Rapids	1,428	2,239	0															
Hibbing	2,481	8,832	7	1					1							1		2
Jackson	1,756	1,907	1								1							
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	2															1
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	1	1														
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	1															
Nashwauk		2,080	0															
North Mankato	939	1,279	1															
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	1													1		
Park Rapids	1,313	1,850	2	1														
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	1															
Pine City	993	1,258	2															
Plainview	1,038	1,175	3													1		1
Preston	1,278	1,193	0															
Princeton	1,319	1,555	0															
St. Louis Park	1,325	1,743	1					1										
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	2		1													
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	2		1													1
Wadena	1,520	1,820	0															
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	1															
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	1													1		
Windom	1,944	1,749	2															
Winnebago City	1,816	2,555	1															1
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			2															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			7	2	1	1												
Fergus Falls, Hospital for Insane			9	2	2													
Hastings, Asylum			1															
Minneapolis, Soldiers' Home			4															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			6	1														
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			4	1														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1	1														
OTHER PARTS OF STATE			632	46	9	24	2	2	8		8	2	2	4	19	69	2	68
Total for state			1547	139	35	48	11	10	11		16	2	3	16	61	146	7	136

*No report received. Registrar not doing his duty.

122 stillbirths not included in above totals.

THE
JOURNAL-LANCET

The Journal of the Minnesota State Medical Association
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North Dakota and South Dakota State Medical Associations

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TRANSACTIONS OF THE MINNESOTA STATE MEDICAL ASSOCIATION

FORTY-FIFTH ANNUAL MEETING

1913

OFFICERS AND COMMITTEES

PRESIDENT

ALFRED E. SPALDING, M. D. ..... Luverne

FIRST VICE-PRESIDENT

GEORGE S. WATTAM, M. D. ..... Warren

SECOND VICE-PRESIDENT

ARTHUR W. IDE, M. D. ..... Brainerd

SECRETARY

THOMAS McDAVITT, M. D. ..... St. Paul

TREASURER

EARLE R. HARE, M. D. ..... Minneapolis

COUNCILOR—FIRST DISTRICT

C. E. DAMPIER, M. D. (2 years) ..... Crookston

COUNCILOR—SECOND DISTRICT

A. J. MILLSPAUGH, M. D. (3 years) .... Little Falls

COUNCILOR—THIRD DISTRICT

J. L. ROTHROCK, M. D. (3 years) ..... St. Paul

COUNCILOR—FOURTH DISTRICT

F. A. KNIGHTS, M. D. (2 years) ..... Minneapolis

COUNCILOR—FIFTH DISTRICT AND PRESIDENT OF THE COUNCIL

H. M. WORKMAN, M. D. (3 years) ..... Tracy

COUNCILOR—SIXTH DISTRICT

F. R. WEISER, M. D. (1 year) ..... Windom

COUNCILOR—SEVENTH DISTRICT

F. A. DODGE, M. D. (2 years) ..... LeSueur

COUNCILOR—EIGHTH DISTRICT

A. G. LIEDLOFF, M. D. (1 year) ..... Mankato

COMMITTEE ON SCIENTIFIC WORK

C. E. SMITH, JR., M. D., Chairman ..... St. Paul
A. E. STRACHAUER, M. D. ..... Minneapolis
THE SECRETARY ..... Ex-officio

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

CORNELIUS WILLIAMS, M. D., Chairman .. St. Paul
W. A. JONES, M. D. ..... Minneapolis
W. H. MAGIE, M. D. ..... Duluth
THE PRESIDENT ..... Ex-officio
THE SECRETARY ..... Ex-officio

MEMBERS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

Delegates

FOR ONE YEAR

THOMAS McDAVITT, M. D. ..... St. Paul

FOR TWO YEARS

J. W. ANDREWS, M. D. ..... Mankato

Alternates

FOR ONE YEAR

W. L. PALMER, M. D. ..... Albert Lea

FOR TWO YEARS

W. A. COVENTRY, M. D. ..... Duluth

COMMITTEE ON NECROLOGY

J. H. JAMES, M. D. ..... Mankato

MEMBER OF THE NATIONAL LEGISLATIVE COUNCIL

W. L. BEEBE, M. D. ..... St. Cloud

Proceedings
OF
The House of Delegates

FIRST SESSION, WEDNESDAY, OCTOBER 1, 1913

The House of Delegates met at the Hennepin County Medical Society rooms, Minneapolis, and was called to order at 2:00 P. M. by the President, Dr. R. J. Hill, Minneapolis.

The President: The first order of business is the appointment of a Committee on Credentials. I will appoint Dr. W. L. Beebe, of St. Cloud, and Dr. A. E. Spalding, of Luverne.

Dr. Beebe, on behalf of the Committee, submitted the following report:

REPORT OF THE COMMITTEE ON CREDENTIALS

The following Delegates were present at the meeting of the House of Delegates and reported by the Committee on Credentials:

SOCIETY	DELEGATE
Aitkin	B. W. Kelly, Aitkin
Blue Earth	A. G. Liedloff, Mankato
Blue Earth Valley	F. S. Durgin, Winnebago
Brown-Redwood	
Carlton	Alex. Barclay, Cloquet
Central Minn. Dist	H. P. Bacon, Milaca
Freeborn	W. L. Palmer, Albert Lea
Goodhue	H. L. McKinstry, Red Wing
Hennepin	Emil Geist, Minneapolis
Hennepin	W. M. Chowning, Minneapolis
Hennepin	Leo M. Crafts, Minneapolis
Hennepin	T. F. Quinby, Minneapolis
Hennepin	A. S. Hamilton, Minneapolis
Hennepin	H. B. Sweetser, Minneapolis
Hennepin	C. A. Reed, Minneapolis
Hennepin	H. L. Staples, Minneapolis
Jackson	R. W. Allen, Heron Lake
Kandiyohi-Swift	C. L. Scofield, Benson
Lyon-Lincoln	E. T. Sanderson, Minneota
McLeod	D. L. Axilrod, Hutchinson
Meeker	Karl A. Danielson, Litchfield
Mower	C. E. Henslin, LeRoy
Park Region Dist	A. F. Gosslee, Deer Creek
Ramsey	C. R. Ball, St. Paul
Ramsey	P. B. Cook, St. Paul
Ramsey	J. M. Armstrong, St. Paul
Ramsey	H. T. Nippert, St. Paul
Ramsey	A. W. Whitney, St. Paul
Ramsey	F. J. Savage, St. Paul
Red River Valley	Theo. Bratrud, Warren
Rice	W. A. Hunt, Northfield
St. Louis	C. W. More, Eveleth
St. Louis	C. L. Haney, Duluth
St. Louis	W. A. Coventry, Duluth
Scott-Carver	W. H. Phillips, Jordan
Stearns-Benton	W. L. Beebe, St. Cloud
Steele	A. B. Stewart, Owatonna
Southwestern	F. R. Weiser, Windom
Upper Mississippi	Paul Kenyon, Wadena
Wabasha	W. J. Cochrane, Lake City
Watonwan	H. B. Grimes, Madelia
Washington	T. C. Clark, Stillwater
Winona	W. F. C. Heise, Winona

The President: There being a quorum present, we will proceed with the reading of the minutes of last year.

The Secretary: These minutes were published in the issue of the Journal of the Association, September 15, 1912, page 180. If the House desires it, I will read them.

Dr. T. C. Clark: Inasmuch as these minutes have been published, I move that they be approved as printed, and that the reading of them be dispensed with.

Motion seconded and carried.

The President: The next order of business is reports of officers. The Secretary will now present his report.

The Secretary presented his report as follows:

SECRETARY'S REPORT

THOS. MCDAVITT, M. D., Secretary.

The Secretary has to report 1,482 names on the rolls of the Association, against 1,397 reported at the last annual meeting.

The defense feature of the Association has been successful. No case has been decided against the Association. I will read the report of our Attorney. The expenses for the defense feature since January 1st have been $351.76.

The American Medical Association held its annual meeting in Minneapolis and were royally entertained by the Minneapolis profession. Ramsey County and the St. Paul medical profession entertained the Association one evening at one of the most unique and successful endeavors in the entertaining art that the Association ever experienced.

During the time of the meeting of the Association our County Secretaries had a dinner and meeting for continuing and increasing interest and enthusiasm in our state organization. The President of the American Medical Association and one or two other members prominent in Association work met with our County Secretaries and added much to the interest and enjoyment of the occasion.

During the meeting of the Legislature last winter a bill was introduced quietly into one of the committees which would license most any kind of a human being to practice the healing art. It was rushed through the committee and was on general orders before any hearing could be obtained from the committee. On proper pressure being used the bill was returned to the committee for a proper hearing, but only three or four days was given. By strenuous work in the Secretary's office each member of the State Medical Association was reached and asked to at once get in touch with his member of the House and Senate to vote against the bill, as at that time it looked as though the bill would be ordered out of committee onto the floor of the Senate at once.

One or two members of this Association who lived in the towns where members of the Senate committee lived which had the bill in charge were sent night messages explaining the emergency and requesting them to wire their member to oppose the bill. Most, if not all, of them responded. The night of the committee meeting members of the Legislative Committee of this Association appeared before the Senate committee; also the attorneys of the parties who had tried to rush the bill through. After much discussion and owing to the able management and irrefutable arguments of the Chairman of the Legislative Committee of this Association, the bill was killed in committee.

The President: You have heard the report of the Secretary. What will you do with it?

Dr. T. C. Clark: I move that the report be accepted and published in the proceedings.

Motion seconded and carried.

The President: The Treasurer's report is next in order.

The Secretary: The Treasurer is not here. His report is very brief, and I will read it. The report was then read as follows:

TREASURER'S REPORT

EARL R. HARE, M. D., Treasurer.

Jan. 22, 1913, to Sept. 1, 1913

RECEIPTS

R. J. Hill, former Treasurer, by check	$4,414.41
R. J. Hill, former Treasurer, four Northern Pacific bonds	4,000.00
Dr. Thos. McDavitt, Secretary	686.65
Interest	117.10
R. J. Hill, former Treasurer, balance on hand at time of reorganization ordered turned into general fund	420.00
	$9,638.16

DISBURSEMENTS

Journal-Lancet		$825.67
Thos. McDavitt, Secretary's expense		161.00
Salaries		200.00
Premiums on Secretary's and Treasurer's bonds		45.00
Safety-deposit box rent		6.10
Printing and stationery		58.00
Entertainment—County Secretaries, etc.		28.90
Telegraph		4.15
Legal fees		351.76
Bonds	$4,000.00	
Cash in Security National Bank	3,957.58	
		7,957.58
		$9,638.16

The President: You have heard the report of the Treasurer. What will you do with it?

Dr. T. F. Quinby: I move that the report be accepted and printed in the proceedings.

Motion seconded and carried.

The President: Is there any other business to come before the House of Delegates?

The Secretary: I would like to call attention to the report of the Council. Dr. Spaulding will bring this matteer before you. It is an amendment to our By-Laws covering the point of medical defense, preventing any further action of the kind such as we had in the Penhall case. It is an amendment drawn by the attorney of the Association, and he advises that it be added to our By-Laws.

Dr. Spalding then presented the following:

WHEREAS, it has always been the understanding in this Association and is now its claim, that Chapter XI of its By-Laws was intended to, and in fact did, authorize and require the Association to undertake the defense of suits against members for malpractice only in cases where the alleged malpractice had occurred subsequent to the adoption of said Chapter XI, but some question has been raised as to the proper construction of Chapter XI, and it is deemed best to put the matter beyond any room for dispute; now, therefore, be it

Resolved, that By-Laws of the Minnesota State Medical Association, Chapter XI, Section 4, Subdivision Fifth, be amended so as to read as follows:

"Fifth. The Minnesota State Medical Association will assume the defense in a suit for malpractice against a member only while he is such and when the alleged malpractice occurred subsequent to March 31, 1910, and to the date on which the member joined the Association."

The President: According to the By-Laws this amendment must lie over twenty-four hours before it is acted on. It is simply read to give notice and to conform to the By-Laws.

Dr. W. L. Beebe, of St. Cloud, presented the following report:

REPORT OF THE DELEGATE TO THE CONFERENCE ON MEDICAL LEGISLATION

As the Minnesota delegate to the Ninth Conference on Medical Legislation, held under the auspices of the Council on Health and Public Instruction of the American Medical Association, your representative was in attendance at Chicago, February 25 and 26, 1913.

There were fifty other members present, one from every state except Arkansas and Wyoming, and one each from the U. S. Army, Navy, and Public Health Service. It was altogether the most successful and enthusiastic Conference in its history.

Reports were received from the Committee on Railway Sanitation, Dr. H. M. Bracken, Chairman.

From the Committee on Revision of the Model Law on Vital Statistics, Dr. Cressy L. Wilbur, Chairman.

From the Committee on Medical Expert Testimony, Dr. Harold N. Moyer, Chairman.

Mr. A. C. Umbreet, attorney for the Wisconsin State

Board of Medical Examiners, read a paper, entitled "The Police Power of the State and the Practice of Medicine." This was really the paper of the Conference.

Dr. Mark W. Richardson read a very interesting paper, entitled "The Control of Ophthalmia Neonatorum in Massachusetts."

Dr. Cressy L. Wilbur, of Washington, D. C., read a paper, entitled "Progress in Vital Statistics Legislation."

A paper, entitled "Medical School-Supervision," by Dr. E. B. Hoag, Minnesota, was read by title in the absence of the author.

Taking it for granted that the majority of you have very little knowledge of the Minnesota Medical Legislation, I herewith present a copy of my report to the Conference:

"Several medical bills have been introduced at this session of the Minnesota legislature, and a few have passed one or the other of its branches, but up to date none have become a law. The Senate recently passed a bill by a unanimous vote, enabling counties to establish tuberculosis sanatoria with state aid. A bill has been introduced for a legislative reference bureau. This would be of service in formulating public-health legislation. Another bill provides for the amending of the midwife law. A bill to create a state tuberculosis commission and appropriating $500,000 was introduced by a physician who is a representative.

"At the last meeting of our State Medical Association the House of Delegates instructed the Committee on State Legislation to present to the present legislature a bill providing for the sterilization of as large a class of male and female insane, criminals, and defectives as the legislature can be persuaded is needed, and this committee was also instructed to present a bill providing for the appointing by the court of a commission of three or five experts, in the field in which the case occurs, in which medical testimony is needed in court.

"Several bills pertaining to the subject of tuberculosis have been introduced, one known as 'State Tuberculosis Commission.' Its intent is to displace the present State Sanatorium Advisory Tuberculosis Commission. Another bill is entitled 'Methods for the Prevention of Tuberculosis.' The next bill on the same subject is entitled 'Reporting and Recording Cases of Tuberculosis.'

"A bill has been introduced providing for the whole-time Health Officer and Medical School-Supervisor with state aid. This is not mandatory, but permissive, i. e., if a certain community wants a whole-time man for this work, and asks for such through the State Board of Health, a man will be nominated by the Board for the position, and half of his expense will be paid out of the state funds, the other half by the local community. This plan is now in operation in one county. A bill was introduced, the purpose of which is to prevent the location of school buildings within eighty rods of existing graveyards, or of locating a grave-yard within eighty rods of an existing school house, and a further amendment providing that the State Board of Health shall have power to make rules and regulations governing industrial camps and railway sanitation.

"Another bill is entitled 'Cities to Maintain Slaughter-Houses.' A bill has passed the Senate entitled 'The Public Drinking-Cup,' designating what places the drinking-cup should be excluded from."

The President: What disposition do you wish to make of this report?

Dr. Clark: I move that it be accepted and published in the proceedings.

Motion seconded and carried.

The President called for the report of the Legislative Committee, and in the absence of the Chairman, Dr. Williams, the report was passed.

Dr. Earl R. Hare (Minneapolis): The Treasurer was not present when his report was read by the Secretary, and he feels that it is due him that the books he keeps should be audited by a committee.

The President: There is such a committee, consisting of Drs. Knights and Rothrock.

The Secretary: The report of the Treasurer has been audited and checked up with the Secretary's receipts, and as far as going over the Treasurer's books is concerned, the committee will probably visit the Treasurer before they get through.

There being no further business to come before the House of Delegates at this time, on motion, duly seconded and carried, the House then adjourned until Friday, 10:00 A. M.

SECOND SESSION, FRIDAY, OCTOBER 3, 1913

The House of Delegates met in the Library of the Hennepin County Medical Society, Donaldson Building, Minneapolis, on Friday, October 3, 1913. The meeting was called to order at 10:35 A. M., by the President, Dr. R. J. Hill, of Minneapolis.

The President: The House of Delegates will please come to order. The first order of business, Gentlemen, is the election of officers.

The Secretary: We will hear a revised report from our Committee on Credentials.

Dr. W. L. Beebe (St. Cloud): The Committee has to report since Friday the additional members: W. L. Palmer from Freeborn County; C. E. Henslin, an alternate from Mower County; A. B. Stewart, an alternate from Steele County; F. R. Weiser from Southwestern.

The President: Nominations for President of the Association are now in order.

Dr. C. L. Scofield (Benson): I understand that there is an unwritten law, generally accepted, that this honor goes to St. Paul one year, Minneapolis the next year, and to the country the third year. This, I believe, is the

country's year. This is an honor which goes to but few, a very high honor and much appreciated, and it ought to go to men who have been foremost in the ranks of the Association and in our work.

I take great pleasure this morning in presenting the name of Dr. A. E. Spalding, of Luverne.

The nomination was seconded.

The President: Dr. Spalding, of Luverne, is nominated.

Dr. H. P. Bacon (Milaca): Mr. President, I present the nomination of the First Vice-President, Dr. Cooney, of Princeton.

The President: Does the nomination receive a second?

The nomination was seconded.

The President: Dr. Cooney, of Princeton, is nominated.

The Chair was asked if a Councilor could become a candidate for President.

The President: Yes, he can.

The Secretary: He is not an ordinary delegate. The Councilors can.

The President: Any further nominations? The nominations are closed for President.

The Secretary: Mr. Chairman, it is understood that neither of these men is a delegate, but that they are in attendance at the meetings. That is a part of the constitution.

The President: I know Dr. Spalding is here. I have not seen Dr. Cooney present at the meeting.

Dr. Bacon: I have not seen him this morning.

The President: Was he here yesterday?

Dr. Bacon: No.

The President: I have not seen him. I wanted him to preside at the present meeting. If he has not been present at any meeting, it would rule him out.

Dr. Bacon: If that is the case I shall have to withdraw his name.

The President: Has any one seen Dr. Cooney during the meetings?

Dr. Emil Geist (Minneapolis): I move the nominations be closed.

This motion received numerous seconds, was put to vote, and carried.

The President: The nominations are closed. The Secretary will please read the names of the delegates.

Thereupon the Secretary called the roll.

The Secretary: That makes 29, Mr. President. Dr. A. B. Stewart makes 30.

The President: Prepare ballots for the office of President. Inasmuch as we have but one nominee, perhaps someone will move that the Secretary cast the ballot. Thereupon it was moved, seconded and carried that the Secretary be instructed to cast the ballot for Dr. Spalding, of Luverne, for President of the Association.

The Secretary: It is so cast, Mr. President.

The President: Nominations for First Vice-President are now in order.

Dr. Emil Geist (Minneapolis): I should like to nominate Dr. Wattam of Warren.

This motion was seconded by Dr. Scofield.

The President: Is Dr. Wattam in attendance on the meetings?

Dr. Scofield: He is.

The President: Dr. Wattam of Warren is nominated. Any further nominations.

It was moved, seconded, and carried that the nominations for First Vice-President be closed.

The President: Inasmuch as there is but one candidate for First Vice-President—

Dr. T. C. Clark (Stillwater): I move that the Secretary be instructed to cast the ballot for Dr. Wattam of Warren.

This motion was seconded and carried.

The Secretary: It is so cast, Mr. President.

The President: Second Vice-President.

Dr. W. J. Cochrane, of Lake City, was nominated.

The Secretary: He is a delegate. He is not eligible.

Dr. Arthur Ide, of Brainerd, was nominated, and the nomination was seconded.

The President: Dr. Arthur Ide, of Brainerd, is nominated. Any further nominations?

The Secretary: Is he in attendance?

It was stated that he was in attendance.

It was moved, seconded, and carried that the nominations be closed, and the Secretary instructed to cast the ballot of the society for Dr. Arthur Ide, of Brainerd, as Second Vice-President.

The Secretary: It is so cast.

The President: Nominations for Secretary are now in order.

Dr. A. S. Hamilton (Minneapolis): In view of the long and efficient service of Dr. Thomas McDavitt in this office, I wish to place in nomination his name for Secretary of the Association.

The nomination was seconded.

The President: Dr. McDavitt, of St. Paul, is nominated for Secretary.

It was moved, seconded, and carried that the nominations for Secretary be closed.

It was further moved, seconded, and carried that the President cast the unanimous ballot of the Association for Dr. McDavitt of St. Paul for Secretary.

The President: It is a vote, and the ballot is cast for Dr. Thomas McDavitt for Secretary.

The Secretary: Thank you, Gentlemen, for your continued confidence.

The President: Nominations for Treasurer are now in order.

Dr. Earl Hare was nominated for Treasurer, and the nomination was seconded.

The President: Any other nominations?

It was moved, seconded, and carried that the nominations be closed and the Secretary be instructed to cast the ballot for Dr. Earl Hare as treasurer.

The President: It is a vote and the Secretary will cast the ballot for Dr. Earl Hare for Treasurer.

The Secretary: It is so cast, and although it is a little bit irregular I desire to say that I have worked for eight months with Dr. Hare, and he is a very efficient Treasurer, almost equal to our last one. (Laughter.) The next is Councilor for the Second District for three years. Dr. J. G. Millspaugh is now Councilor.

The President: Nominations for Councilor for the Second District for three years are now in order. Dr. Millspaugh is now acting.

Dr. T. F. Quinby (Minneapolis): I would like to ask if each district is not autonomous. Doesn't it make its own nomination for its own district? It seems to me that it ought to.

The President: We certainly listen to the men from that district.

Dr. Paul Kenyon (Wadena): As delegate from the Upper Mississippi Valley, I take pleasure in nominating Dr. Millspaugh as Councilor for our district for the ensuing term.

This motion was seconded.

The President: Dr. Millspaugh is renominated for Councilor for the second district. Any further nominations?

Dr. Quinby: I move the nominations be closed, and the Secretary instructed to cast the ballot of the society for Dr. Millspaugh for Councilor of the second district.

This motion was seconded and carried.

The Secretary: It is so cast.

The President: Dr. Millspaugh is elected.

The Secretary: Councilor for the third district. Dr. J. L. Rothrock is now Councilor.

Dr. C. R. Ball (St. Paul): I take great pleasure in renominating Dr. J. L. Rothrock as Councilor for the third district.

The nomination was seconded.

The President: Dr. Rothrock is nominated.

Dr. Rothrock: I—

The President: Dr. Rothrock, sit down. (Dr. Rothrock sat down). Any further nominations?

Dr. H. M. Workman (Tracy): I think it was Dr. Rothrock's intention to move that the Secretary be instructed to cast the ballot. I now make that motion.

This motion was seconded and carried.

The President: It is a vote, and the Secretary is instructed to cast the ballot for Dr. J. L. Rothrock as Councilor for the third district.

The Secretary: The ballot is cast.

The President: The next is Councilor for three years from the fifth district. Dr. H. M. Workman is now Councilor.

Dr. E. T. Sanderson (Minneota): I move that Dr. Workman be nominated for Councilor for this district.

The motion was seconded.

The President: You have heard the motion, Gentlemen. Dr. Workman is nominated.

Dr. T. C. Clark (Stillwater): I move the nominations be closed and the Secretary be instructed to cast the ballot for Dr. Workman.

The motion was seconded by Dr. Quinby, put to vote, and carried.

The President: The Secretary will cast the ballot for Dr. Workman.

The Secretary: It is so cast.

The Secretary: Having elected Dr. Spalding as President, it makes a vacancy in the Council from the sixth district for one year. It will be necessary to elect a Councilor in Dr. Spalding's place for one year.

The President: What district is that?

The Secretary: It is the sixth district.

Dr. A. G. Liedloff (Mankato): I would like to inquire if a delegate is eligible?

The Secretary: A delegate is eligible to the office of Councilor.

Dr. Liedloff: Then I move that Dr. F. R. Weiser, of Windom, be the Councilor for that district.

The nomination was seconded.

The President: Dr. Weiser is nominated for Councilor of the—

The Secretary: —the sixth district, in place of Dr. Spalding of Luverne.

The President: Any further nominations?

It was moved, seconded and carried that the nominations be closed and the Secretary instructed to cast the ballot for Dr. F. R. Weiser for Councilor for the sixth district for one year.

The Secretary: It is so cast.

The Secretary: During the past year one of our Councilors, Dr. A. O. Bjelland, of Mankato, died. There is still one year in his term for his district, and there should be some person from that district, the eighth district, the Mankato district, elected for one year to fill the vacancy.

Dr. F. R. Weiser: I would like to return the compliment of Dr. Liedloff here in getting me into trouble, and nominate him for Councilor.

The nomination was seconded.

Dr. Quinby: I move the Secretary be instructed to cast the ballot for Dr. Liedloff.

The motion was seconded and carried.

The President: It is a vote and the Secretary will so do.

The Secretary: It is so done, Mr. President.

The Secretary: The next order of business is the election of a delegate to the American Medical Association for two years.

The President: Nominations for delegate to the American Medical Association for two years are in order.

Dr. Alex. Barclay (Cloquet): I would like to place in nomination the name of Dr. W. A. Coventry, of Duluth.

Dr. C. W. More (Eveleth): I second the motion.

Dr. A. G. Liedloff (Mankato): I would like to ask if there is another delegate to be elected besides the one for two years?

The Secretary: No. There are two alternates to be elected.

Dr. Liedloff: In that case I will nominate Dr. J. W. Andrews, of Mankato, for delegate to the A. M. A. for two years.

This nomination was seconded.

Dr. L. M. Crafts (Minneapolis): Who are the present delegates?

The Secretary: I hold over for one year. I was elected for two years and consequently there is one to be elected for two years, and then there are to be two alternates, one for one year and one for two years. This all comes about by Dr. Dugan's moving out of the state. Dr. Andrews is the present alternate, and it has been usually the custom to raise the alternate and make him the delegate.

Dr. Geist: I move the nominations be closed.

Dr. Crafts: For whom was I the alternate last year?

The Secretary: The alternates are not named for any special one.

Dr. Crafts: I received no credential last year to the A. M. A.

The Secretary: How could you? The delegate is the only one that receives credentials, and if he cannot go he signs over his credentials to one of the alternates. Dr. Dugan's credentials were signed over to Dr. Andrews.

Dr. Crafts: For how long a time was I elected?

The Secretary: You were elected for one year.

The President: Does the motion receive a second?

Dr. Geist's motion was seconded and carried.

The President: It is a vote. Prepare ballots. There are two candidates, Gentlemen.

Dr. Crafts: Did Dr. Andrews serve as a delegate?

The Secretary: He served as an alternate delegate. Necessarily he had to serve as a delegate. He was substituted for Dr. Dugan.

Dr. Crafts: Is that left to the choice of the man that does not go?

The Secretary: Yes.

Dr. C. A. Reed and Dr. H. M. Workman were appointed to act as tellers.

Dr. Crafts: While the tellers are counting the votes, I would like to inquire if the alternates are not elected for the same length of time as the delegates at the A. M. A.

The Secretary: The method of electing the delegates here is just the same as it is in the American Medical Association. There are two delegates elected, one for two years and one for one year, and then there is an alternate elected, one for one year and one for two years. The credentials that are sent out from the headquarters are just the same as the credentials that are sent out from our headquarters to our delegates. The delegate himself is the only one that receives any credential. On the back of each credential is a space for the delegate to sign over

to any alternate that he wants to be delegated. That was all threshed out in the American Medical a year ago, so that any alternate can be appointed for any delegate, and so no alternate receives any credential except in the failure of the delegate to attend the meeting.

Dr. Crafts: Then there are two delegates to the A. M. A. elected by our House of Delegates each year.

The Secretary: Ordinarily there is one for two years, and when he has served his two years we must elect one for two years again, and his term is two years. I was elected last year. I was elected for two years. Dr. Dugan had been elected the year before that for two years. Consequently he had one year to serve. Now Dr. Dugan's term is out. I have one year to serve, and his going out of the state entirely throws the regular order out of its regularity. Consequently we must elect one delegate for two years and then we must elect an alternate for two years and an alternate for one year to get it back in line again.

Dr. Crafts: What did you mean by the statement that there is simply a delegate elected, one for one year and one for two?

The Secretary: The usual custom is that you elect every delegate for two years. The one that was elected the year before has still one year to serve.

Dr. Crafts: Then the alternates are elected for how long a period?

The Secretary: The alternates are elected for just that period.

Dr. Crafts: How does the House of Delegates exist as a continued thing if the delegates are elected one for one year and one for two years? Why is an alternate elected for one year?

The Secretary: Well, I don't know that I can make it any plainer than I have. We are entitled to two delegates in the American Medical Association. In order to be a continuous body it is necessary that one of them serve two years. Consequently in starting out you must make it one for two years and one for one year, and the new man is elected for two years.

Dr. H. M. Workman: Wasn't the matter thrown a little out of gear last year by someone's being elected to fill out the unexpired term of Dr. Max Vanderhorck?

The Secretary: The matter was thrown out of gear last year, and then it has been thrown out of gear again by Dr. Dugan's going out of the state, and consequently he could not serve.

Dr. H. B. Sweetser (Minneapolis): Ordinarily there is only one delegate and one alternate elected every year, and the fact that we elect two now is simply because things are not right.

The Secretary: Ordinarily we elect a delegate for two years and an alternate for two years and push the alternate on up, but of course the House can do as it sees proper about that. Ordinarily we elect the delegate for two years and the alternate for two years. We elect an alternate for two years and the alternate that was elected the year before goes up, and he is the alternate for the next year. That is the usual way that it has gone until Dr. Vanderhorck died and Dr. Dugan left the state and thereby lost his right.

Dr. Geist: I move the nominations be closed.

The Secretary: Dr. Coventry receives 17 votes and Dr. Andrews 24.

Dr. Quinby: I would like to ask the number of delegates entitled to a vote as the Secretary read them.

The Secretary: There were 41 votes cast.

Dr. Quinby: How many are entitled to a vote?

Dr. Workman: How many delegates are present?

The Secretary: I will call the roll again.

Dr. Barclay: There are not 41 delegates here. Seventeen and 24 make 41.

The Secretary: I will call the roll again, Gentlemen.

The President: As I understand it, the Councilors are allowed to vote.

The Secretary: That accounts for 9 votes. The Councilors are permitted to vote as delegates. That would make the count just right.

The President: Dr. Andrews is declared elected for two years.

The Secretary: Now it will be necessary to elect an alternate for two years. Dr. Crafts still holds over as alternate. No, Dr. Crafts was the alternate for one year.

Dr. Quinby: I wish to place in nomination Dr. Crafts as alternate for two years.

Dr. Geist: I second the nomination.

The President: Dr. Crafts is nominated as alternate for two years.

Dr. Barclay: I would like to try again. I

would like to place in nomination the name of Dr. W. A. Coventry, of Duluth, as an alternate for two years.

The President: Does the nomination receive a second?

Dr. Workman: I second the nomination.

The President: Dr. Coventry of Duluth is nominated as an alternate for two years. Any further nominations?

Dr. Workman: I move the nominations be closed.

The motion was seconded and carried.

The President: Please prepare ballots for alternate for two years.

Dr. C. R. Ball (St. Paul): I wonder if it would be in order to make a motion of this sort, that the candidate receiving the highest number of votes as alternate for the American Medical Association be made delegate for two years and the one receiving the lowest number be the delegate for one year. If it is in order I make that motion.

The Secretary: We have prepared the ballot already, Doctor, for two years.

The President: I do not think it would hardly be in order at this time. It is right in the midst of a vote.

Dr. Crafts: I wish to make inquiry whether any member is ready to report for the Committee on Legislation, for as soon as we get through with the election of officers I am going to call up a matter with reference to that committee.

The President: The Secretary says he has a report for that committee.

The Secretary: The ballot stands Dr. Crafts 15, Dr. Coventry 26.

The President: Dr. Coventry is declared elected as alternate for two years. Nominations for alternate for one year are now in order.

Dr. Ball: I nominate Dr. Crafts as alternate for one year.

This nomination was seconded.

Dr. W. L. Palmer, of Albert Lea, was nominated and the nomination seconded.

It was moved, seconded, and carried that the nominations be closed.

The President: It is a vote. The nominations are closed and you will prepare ballots for alternate for one year.

The Secretary: The ballot stands Dr. Crafts 16, Dr. Palmer 24.

The President: Dr. Palmer is declared elected as alternate for one year. That closes all the elections except the appointive committees, etc.

The Secretary: There are the appointive committees; the Legislative Committee, the Committee on Scientific Work, and the member of the National Legislative Council, which has been usually appointive, and the Committee on Necrology. And then the next place of meeting .

Dr. Crafts: Those committees cannot be appointed by the Chair, unless by vote, by motion. Those committees are appointed by the House of Delegates unless otherwise provided by the House of Delegates.

Dr. Workman: I move that the incoming president be authorized to appoint the committees.

Dr. Liedloff: I second the motion.

The motion was thereupon put to vote and carried.

The Secretary: Now a place of meeting, Mr. President, is necessary.

Dr. T. C. Clark (Stillwater): They met at Duluth last year and Minneapolis this year, and is it not St. Paul's turn next year?

Dr. Ball: I—

The President: Dr. Clark has the floor, Dr Ball.

Dr. Clark: I will give way to Dr. Ball.

Dr. Ball: St. Paul would be very glad to entertain the State Medical Association next year.

Dr. Beebe: I move the invitation be accepted, and the time of meeting left to the Council.

The motion was seconded and carried.

The Secretary: It might be well also to make some motion giving the Council authority to pay the bills for this meeting, as they are returned to us.

The President: Is not that provided for by the By-Laws?

The Secretary: It goes through all right, but it is just as well to give the additional authority.

Dr. P. B. Cook (St. Paul): I move the Council be authorized to pay what bills have been incurred by the House of Delegates at this meeting and the meeting of the State Association.

The motion was seconded and carried.

The Secretary: I have received from the Chairman of the Legislative Committee the following report:

REPORT OF THE LEGISLATIVE COMMITTEE

This Committee has had a number of meetings, and various subjects have been discussed and passed upon. The first one was the question of trachoma in the public

schools. We are unanimously of the opinion that trachoma in the schools is a menace, both for the present and for the future. We think that there should be legislative action that would provide for the education of the trachomats and that they should have separate schools; any pupil, however large, who may have trachoma, should be required, by state law, to attend those schools, and upon no account and under no circumstances whatever should a trachomat be permitted to attend a public school or a private school. Trachoma has caused blindness to many, many thousands, and will, in the future, inflict like injuries upon many thousands more. Even in the case that the victim of trachoma should not be rendered blind, and thus a public charge, there is a vast amount of injury, short of complete blindness, which trachoma will inflict. Trachoma should be made a disease required to be reported to the health authorities in any community where it exists. The state should make provision for the cure of its trachomats. It is far more important to a community that a trachomat be cured of his trachoma than it is that the ordinary person of unsound mind should be confined. The money loss to a state from trachoma is as great as that which comes from the white plague. Trachoma is, in all cases and in every state, a curable disease. It requires, however, the skilled administrations of a person learned in the nature of the disease and its proper care.

Taking up now the question of leprosy: This was also discussed by the Committee and it is believed that the state should establish a leprosarium. This leprosarium may be so placed that there could be no danger to persons living in its vicinity, and it is thought that it would be well to have one large farm, say of 2,000 acres, upon which the state would erect a house for the superintendent and houses or cottages for those who have the disease. After a thorough and proper examination had been had of the subject of the disease before a magistrate or a court of record, the patient should be committed to the leprosarium after the same manner which now obtains as to persons who are insane. It is believed that in addition to this leprosarium, of 2,000 acres, that the state should maintain in the neighborhood of the State University a smaller leprosarium where the cases in their various stages could be watched and made a subject of clinical instruction. It is the intention of this Committee that such leprosaria should be self-sustaining after once they are established by the state. Those persons afflicted with leprosy are in almost every case able to work, and it is better that they should work. It is claimed by the best authorities that the public might use the product of the labor of the leper without danger of infection. The Committee would respectfully recommend that the State Medical Association use its influence to obtain such leprosaria from the state.

Your Committee had a meeting and the question of two bills which had come before the legislature, one advanced by the Optometrists of the state and another by a sect calling itself "Naturopaths." It is believed by the Committee that the respective bills were pernicious in their character, and, particularly, the one advanced by the naturopaths. The bill of the optometrists required that every physician in the state, in general practice and in special practice, should be required to pass an examination before the Board of Optometry before such physician could be permitted to prescribe glasses. There was a certain reservation made as to those who had been in practice for a certain number of years previous to the passage of this act, but those coming into the state in the future, however well qualified, and desiring to practice ophthalmology, as well as the general practitioner who might elect to prescribe glasses for his patient, would be obliged to appear before this Board, pay a fee, submit to the humiliation of an examination by those examiners and obtain, or fail to obtain, as the case might be, a certificate from that august body. Your Committee argued before the legislative committee having consideration of the bill that the physicians of this state are an honorable body of men owing certain duties to their patients, having consciences, and not at all likely to attempt to prescribe glasses for their patients or to administer any remedy without they are competent to do that which they set out to do. Fortunately, the legislative committee was convinced, by the arguments used, that the bill was unnecessary.

Your Committee would further recommend to the State Medical Association that it use its influence to raise the standard of the optometrists in the state of Minnesota and that a bill should be passed requiring the optometrist to pass the examination before the Board of Examiners of the state of Minnesota for a license to practice optometry after the expiration of five years. This would not only insure better service to the public, but it would also insure better qualified optometrists because the committee holds that a man who shall properly practice optometry must be well informed as to the physiology, anatomy, and diseases of the eye.

The bill providing for the establishment of a Board of Naturopathy for the examination of candidates who wish to practice naturopathy, came under the observation of the board several times, having been supposedly killed and again revived.

The naturopath was most modest in his demands, and the bill provided for the establishment of a Board of Examiners, and also provided for the establishment of a College of Naturopathy. No provision was made to ascertain as to the competence of this board to teach the various branches which they set out to teach, but there was very full provision made for the collection of fees. The art or science of naturopathy was defined as consisting of a number of branches, and the naturopath was empowered to do anything that the regular physician may be permitted to do, except to perform certain surgical operations and to administer certain medicines, but, if it should appear to the naturopath that these operations and these medicines were indicated by the laws of physiology, then he could administer such medicine and do those operations.

It is believed by your Committee that the sum of $120 provided for as the fees for this Board of Examiners in Naturopathy might offer an inducement not to be disregarded in the examination of candidates. Under the provisions of this act the Board of Examiners and the faculty of instruction in the College of Naturopathy might well be one and the same body.

This bill was finally killed in the committee, despite the fact that it had some warm friends on the committee. It is believed that so harmful a bill as this has not before come before the legislature.

The Habitual Criminal: The subject of sterilization of the habitual criminal is an old one. This Committee, in conjunction with the State Board of Health, en-

deavored to secure the passage of a law providing for the sterilization of the habitual criminal in the state of Minnesota, and while the bill had many friends in the legislature, we did not succeed in getting it through, partly because of the large number of bills to be acted upon and partly because there was some opposition to it. Your Committee respectfully recommends to the State Medical Association that the work along this line should be continued at the next session. The question of a closer association of the physicians of this state for their own protection and the protection of the public was taken up by the chairman of the Legislative Committee at the Winona meeting of the State Medical Association. It was then recommended that the doctors of the state enter into some sort of a union and that not only should they care in the way of insurance of fellow practitioners, but that they should seek to become a political force in the community. It is a well-assured fact that after a legislator has received his credentials and becomes a law-maker he may, and does often, treat measures advocated by physicians with indifference or even active opposition. It is believed, however, that if every physician in the state would use his influence—and the combined influences of all of the physicians of the state must be very great—to either aid or defeat the election of a candidate to the legislature that this candidate would lend a willing ear to suggestions and to measures opposed by the physician. It is probable that the physicians of the state could, if they united to do so, influence at least 10,000 votes. Now, we do not believe that any candidate for public office would care to or could afford to disregard the wishes of men who could cast a vote of 10,000. We would therefore recommend that the State Association take action toward the establishment of an association that would have for its purpose the creation of a new political force with which every candidate for public service would have to reckon.

Telephone: The question of telephone for physicians: While it was not discussed in any meeting of the Committee, it has been largely discussed by the physicians in the state, and it is almost the unanimous opinion that a hardship is imposed upon the members of the profession because of the rules of the telephone companies. In every large state there either is or will be at least two telephone companies. It will be seen at a glance that every physician in active practice must feel himself called upon to have these two telephones in his office and in his residence. This imposes a severe and a double tax which in many cases is most onerous. Now, then, the remedy is this: that either there should be but one telephone company in a community which should be under state direction and government with a just regulation of tolls, or that where there are more than one telephone these telephone companies should be required by law to make ample and sufficient provision for the transmission of messages wherever originating over both lines. If it is impossible to do either of these two things, then your Committee would recommend that the physicians of the community unite and agree to use under any and all circumstances only one telephone, that is, only the telephone of one company. It is believed that if this were done that the telephone companies would very quickly agree to arrange for the interchange of messages. Such interchange might be effected by agreement in any community upon the payment of a small fee, say, one cent for five minutes' conversation.

CORNELIUS WILLIAMS,
Chairman.

In my report I stated to you what happened to this bill (referring to the bill introduced by the Naturopaths). It was introduced on the floor and on general orders after we supposed it was killed. They slipped it into the committee, and it was put on general orders again, and we had a great deal of trouble in even getting it back to the committee and getting a hearing.

The President: You have heard the report, Gentlemen. What disposition will be made of it?

Dr. Crafts: Before any action is taken, I would like to refer to an action taken at the last meeting a year ago in Duluth, by the House of Delegates, where two resolutions were acted upon by the House of Delegates, directing this committee to do two certain things. One was to present and push a bill in the legislature providing for the sterilization of certain classes of defectives and criminals. Then a resolution was arranged at the suggestion of the President of the Association, striking out the word "criminals" and only providing for the sterilization of certain defectives. The report of the committee refers there only to the bill for the sterilization of criminals, and there is nothing in reference to a bill regarding the sterilization of certain classes of defectives; so that apparently they did not put in a bill upon the lines directed by the vote of the House of Delegates.

There was another resolution with reference to the handling of expert testimony in court, and it was voted that such a bill be prepared by the Committee on Legislation and referred to the House of Delegates by the Committee at this time. The committee does not touch in its report upon that resolution, and it seems to me that a committee appointed by this Association should follow the directions of the House of Delegates by vote on resolution. They have not done it in either particular.

The Secretary: As you yourself, Mr. Chairman, were a member and I also an ex-officio member of the committee reporting in this report, in reference to the only sterilization act that was attempted, we found it was unnecessary to go any further with this legislature. In talking it over with the members it was found absolutely impossible to get any bill favorably reported upon as far as expert testimony was concerned, although it was attempted in an individual capacity. The next session of the legislature will not be until two years, and either this House of Delegates or the next House of Delegates may take action, and I trust that pre-

vious to that time Dr. Crafts will send in what he desires. You will see in looking over the records of the last meeting that Dr. Crafts promised to send the Legislative Committee an idea of what he would like to have in such a bill. I do not remember of ever receiving such suggestions from Dr. Crafts. If such a bill had been sent by Dr. Crafts it certainly would have been presented.

Dr. Crafts: The motion as finally acted upon, Mr. Chairman, was not to present a bill at the last session of the legislature, but to have a bill prepared and read before the House of Delegates at this session for their further consideration before it was presented to the legislature. Not having been done the courtesy of being placed upon the Legislative Committee, having introduced both of these resolutions, I thought my ideas were hardly worth forwarding to the Committee on Legislation, and it was not a question of my ideas but a question of endeavoring to have expert testimony so handled that it would be taken out of the basis of partisanship and put upon a plane of dignity and as a report to the court as a court commission impartial and non-partisan, and I trust that the House of Delegates will still further act upon this matter to put expert testimony in the position where it belongs.

The Secretary: It is evident that Dr. Crafts has paid a great deal of attention to this particular question, and the committee knowing nothing about what he desired and he being the originator of the motion, if he will be kind enough to designate along what lines he would like to have this bill drawn, then we can place it in the hands of an attorney and have it drawn in proper lines. We must have some basis of action. I know that the committee would like very much to act upon this question, and if he will give us his general ideas they will be very glad to do so.

Dr. Crafts: I shall be glad to present any ideas I may have to the committee.

The Secretary: It will be a great satisfaction to the committee, Doctor.

Dr. H. M. Workman (Tracy): Mr. President, I would like to move—now, this matter has not been before the Council—; it has been talked informally,—I would like to move as an amendment to the constitution—Article VI reads as follows: "The Council shall consist of the Councilors, and the President, and the Secretary, ex-officio. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. A majority of the Councilors shall constitute a quorum." I would like to make an amendment to that, the addition of the words "and the Treasurer" of the State Association. At present the Secretary and President of the Association are members, but not the Treasurer, and it would be a help, it seems to me, if we could have the Treasurer also a member of the Council. I move that as an amendment.

Dr. Ball: I second the amendment.

The President: That will have to lie over until next year.

A Member: The matter of the prevention of ophthalmia neonatorum has had considerable stimulation in state legislatures, and I believe that it would be a very good matter for the Legislative Committee to formulate some bill looking toward the enforcement of the prevention of ophthalmia neonatorum.

The Secretary: Mr. Chairman, there is a bill on the statute books at the present time that has been on the statute books for twenty-odd years in reference to ophthalmia neonatorum compelling every midwife, when she finds a suspicious case of eye disease, to immediately notify the doctor. And I do not know what more legislation we could put on that would amount to anything further.

A Member: I don't know as we especially need to specify the midwives, because, I think, probably the fault is just as much with doctors as with midwives. There is a law in some of the states—I think Wisconsin is one of the states—making action compulsory in every case. It is a one per cent solution of silver nitrate, I think.

Dr. Quinby: If, as I understand it, that part of the bill relative to the sterilization of certain defectives has been withdrawn—the bill emasculated to that extent—I would like to see it restored and the Legislative Committee urged to pass the bill as originally drafted. From my view-point it seems to me that every society, every community that has even a skeleton of organization, has an inherent, an inalienable, right to formulate rules for its protection and see that they are enforced. The state legislature does not hesitate to inflict the death penalty upon criminals for its own protection, and I do not see how it can reasonably and consistently hesi-

tate to enforce the rules for the protection of the community at large by the sterilization of these defectives and thereby prevent propagation of their kind. I would like very much to see that clause restored to the original bill and presented to the legislature, and I do not know whether a motion to that effect would be pertinent or not. If so, I would make it.

The Secretary: There is an amendment to the By-Laws on our table that was offered at our last meeting and I would like to present it to you. Dr. Spalding presented the following, which was drawn at the request of our attorney, to cure a defect in our medical defense law:

"WHEREAS: It has always been the understanding in this Association and is now its claim that Chapter XI of its By-Laws was intended and in fact did authorize and require the Association to undertake the defense of suits against members for malpractice only in cases where the alleged malpractice had occurred subsequent to the adoption of said Chapter XI, but some question has been raised as to the proper construction of Chapter XI, and it is deemed best to put the matter beyond any room for dispute;

"Now, therefore, be it resolved, that By-Laws of the Minnesota State Medical Association, Chapter XI, Section 4, Subdivision 5th, be amended so as to read as follows:

"Fifth. The Minnesota State Medical Association will assume the defense in a suit for malpractice against a member only while he is such and when the alleged malpractice occurred subsequent to March 31, 1910, and to the date on which the member joined the Association."

That was placed before the House of Delegates at its last meeting and is now up for adoption.

The President: That is now before you for adoption or rejection. Are you ready for the consideration of this question? Any discussion? Those in favor of the change in the wording of the By-Laws to cover this possible defect will signify by saying aye. Contrary. It is a vote and so ordered. We will have the minutes of the last meeting.

The Secretary: We will now read the minutes of the last meeting.

Dr. Geist: I move the minutes be dispensed with and adopted as filed.

The motion was seconded and carried.

Dr. P. B. Cook (St. Paul): I believe there is a surplus of several thousand dollars in cash to the credit of the State Medical Association, and I believe it is necessary that we authorize the Finance Committee or the Treasurer—the Council—to invest this in interesting-bearing bonds. I would like to make a motion to that effect up to the limit of two thousand dollars of the funds now on hand.

The President: The Treasurer, as I recall, reported something like $4,000 in cash.

Dr. Cook: A little less than $4,000.

The Secretary: Yes, $3,957.

The President: We can safely invest $2,000. It takes about $1,800. The dues will be coming in.

The Secretary: Only make it obligatory up to $2,000.

The motion was seconded and carried.

Dr. W. L. Beebe (St. Cloud): I rise to second Dr. Quinby's motion. He made a motion. I don't think there was any second to it. I would suggest that he and Dr. Crafts get together and act on the suggestion of the Secretary for the benefit of the chairman or the Committee on Legislation next year, and that these two resolutions be drawn up the same as they were suggested last year, the one on sterilization and the one on expert testimony.

The motion was carried.

The Secretary: Mr. President and Gentlemen, the President has received the following letter from a former President, Dr. Sneve. It says:

"Can I ask you to have a resolution passed in the House of Delegates and approved by the State Association memorializing Gov. Eberhart on the subject of our Hospital at Willmar? The Board of Control is playing 'hawk' with it and patients sent up there are advised that they need not stay unless they wish to. Consequently they run away after a short stay, in this way nullifying the intent of the hospital."

As you are probably aware, this hospital at Willmar is a hospital for inebriates, and while the law seems to have been drawn with about as much perfection as a law could be, according to Dr. Sneve, "it has been practically nullified by the action of the Board of Control in the first place in not giving it funds enough to run itself with and, in the second place, by destroying whatever necessity there was for protecting and taking care of those inebriates by permitting them to go up there and come out whenever they desire, and there seems to be a desire on the part

of a number of the statesmen and the Board of Control in general to nullify it entirely and take it away from its intended reason for establishment and make an insane hospital out of it." And I think if these nerve men especially who happen to be members of the House of Delegates are interested particularly in this matter, that it might be well to hear from some of them in reference to the Willmar institution and what they think about it and such resolution as they think ought to be drawn.

Dr. C. R. Ball (St. Paul): I think this is a very important matter, and when that institution was built at Willmar I felt that it was going to be a good thing. After I found out the conditions under which it was going to run, it made me feel as though it would be a joke. Now, we all know that there is absolutely no use in sending alcoholics to Willmar if it is optional with them how long they are going to stay and if there is no control put over them. If we could hold alcoholics in this manner we could do so at home. There are a large number of those patients, and I think that they are found in every community and in every state. The state needs to be empowered to have some control over them not only for their own benefit but for the welfare of their families and the welfare of the children that are going to be born. I think it is a well-established fact that the two greatest poisons, the two greatest influences upon the nervous system of future generations, are alcohol and syphilis, and I think there is a tendency to give alcohol even greater importance in causing degeneration in the nervous system than is due to syphilis. Now, in Germany they have such institutions where the patients are sent, and they are detained there according to the length of time the superintendents of the institutions think necessary, and it seems to be the opinion of those who have tried this plan in Germany that oftentimes one year and two years and even three years are necessary to accomplish any good with these patients. The plan there is to put them under strong disciplinary control, to teach the bad influences of alcohol in every possible way through lectures and through talks, to show the unavoidable changes that alcohol causes on the various organs of the body, and to place the inmates under healthful conditions, to give them work and bring them up to the best possible state of physical and nervous and mental and moral development; and they are accomplishing something in this way. It seems to me that we could not do any one single thing that would be better than to make a success out of this institution at Willmar. To allow it to fail by default will be a great negligence on the part of the medical profession and the State Association.

If possible we should make a law where, for instance, a man who has been drinking and not working and not providing for his family, that any member of that family can file against the individual and have a hearing the same as in a probate court, and if the court and the medical jury decide the man is a confirmed alcoholic, he should be sent, whether he wishes it or not, to this institution and be kept there the length of time that the superintendent of the institution thinks necessary for his cure. This to me is a very important thing, and I think we ought to act on it, and take some definite and effective measures to try and—

The President: Make a motion. Anything that occurs to you we will consider.

Dr. Ball: Mr. President, I move you that a committee be appointed to co-operate with the Legislative Committee in whatever way is necessary to obtain a law making it compulsory—to get a law by which chronic and confirmed alcoholics may be sent to this institution at Willmar in the way that mental patients are sent to the state institutions and that they can be confined there as long as the superintendent of the institution or any other proper authority thinks is necessary for their cure.

The motion was seconded and carried.

The Secretary: That committee to be appointed by the Chair?

Dr. Ball: Yes, sir, acting in conjunction with the Legislative Committee on that particular point.

Dr. E. T. Sanderson (Minneota): I should like to ask if the doctor's wish was to have this passed through the judge of probate or whether the justice or judge should sentence these people the same as he usually sentences one to a penal institution?

Dr. Ball: My idea was that the commitment be made about in the same manner that it is now, only that it be compulsory, just the same. For instance, you have in your locality some individual who is mentally unsound. The family come to you and ask you to file against him and he is brought up there before the probate judge

and a jury of physicians, and if, in their judgment, they think the circumstances render it necessary they send this person for the good of the community and the family to the state institution and keep him there until the superintendent says he is well enough to go home; and that would be my idea with regard to the treatment of confirmed alcoholics.

The Secretary: I think, Mr. Chairman, that is all on the table.

The President: Anything in the nature of unfinished business? We have nothing further on the Secretary's table? Anything under new business?

Dr. Alex. Barclay (Cloquet): I desire to offer a suggestion I have been asked to present to this House of Delegates, a suggestion to the Legislative Committee. It is a well-known fact that the method of appointing the State Board of Medical Examiners is not the most ideal one, for very often men are appointed on that Board that are not the best qualified to serve; and, with all due respect to the governor of the state, I do not believe that he is the best qualified judge as to a man's ability in that respect, and I would like to offer at this time a resolution to the effect that the Legislative Committee formulate some plan whereby the state and county societies nominate men for that appointment, and that the appointment be made from the selection which has the confirmation of the societies. In that way I think we shall have a more uniform body of medical examiners and one that will better represent the medical standing of this state.

The President: We can suggest all we please, and the governor will appoint whom he pleases. I have been in that work for twenty years, and I know just what he says: "The profession be damned."

Dr. C. L. Haney (Duluth): We understand that, too, Doctor, but if we keep hammering away we may get something. The governor will say: "The profession be damned" all right, but just at present the circumstances are rather more favorable for concerted action between the State Association and the State Board of Medical Examiners than they have been hitherto. We have an ideal condition of things, so far as the Secretary is concerned, and the Secretary of course is ideal, and the fact of our having the same man as Secretary of the State Association and the State Board of Medical Examiners is a strong point in favor of some such arrangement as the gentleman on my right has suggested. I wish we might get at this thing. I doubt if the governor is to blame entirely in this matter, for if there has ever been any concerted action in the last twelve years in regard to bringing competent men to the knowledge of the governor, I don't know what it is. I have never heard of it. The governor has selected many competent men, but the selection has been made in an entirely haphazard way, and he probably has been obliged to do the best he could without advice from the profession, and he really ought to have the benefit of what advice we can give him.

Dr. Ball: About two years ago when there was a vacancy on the State Board of Health and the appointment belonged to St. Paul, the governor asked the Ramsey County Medical Society to submit to him five names, and from those five names he made his appointment, and I think that he probably would welcome some co-operation on the part of the State Medical Association with reference to these appointments, and perhaps if we would ask him if he would not be willing to make his appointment from a list of names recommended by the State Association he would welcome the innovation. He showed his willingness in asking our county medical society to give him a list of names to select from.

Dr. C. W. More (Eveleth): I second the motion.

The President: Will the stenographer read the motion.

The stenographer read the motion.

The President: The motion is that the governor be asked in case of appointment to the Board of Medical Examiners to make his appointment from a list submitted to him by the members of the State Association. Would it not be better to leave it to the Councilors—a list of men selected by the Councilors, acting as representing the State Association? I shall be glad to see it tried. Does the question of leaving it to the Councilors meet with your approval?

The amendment was accepted and the motion as amended was put to vote and carried.

The President: The Councilors will submit a list of names to the governor.

Thereupon the House of Delegates adjourned sine die.

PRESIDENT'S ADDRESS

By R. J. Hill, M. D.
MINNEAPOLIS, MINN.

Fellow members of the Minnesota State Medical Association:

I thank you for the honor you have conferred upon me in electing me your president. I realize that it is the highest honor that the Society can bestow. I have for many years enjoyed your trust and confidence in the office of treasurer of your association and greatly appreciate the fact that through this office I came to know personally many men in various parts of the state. From the organization of the association in 1869 up to the present time the society has had but two treasurers, Dr. S. B. Sheardown, the first treasurer and a charter member, held the office until his death.

It has been customary for your president to deliver an address on some subject of interest to the association. However, before taking up two or three questions which I think worthy of discussion it has occurred to me that a brief history of the organization might be of interest. A State Medical Society was organized in 1855 but no record can be found of it and for some time previous to 1869 it had held no meetings. In January of 1869 a call was issued to the profession of the state to meet to discuss the feasibility of resurrecting this society. On February 1st, of 1869, a meeting was held at the International Hotel in St. Paul in response to this call; Dr. Potts in the chair and Dr. D. W. Hand, Secretary. After a long discussion the society was declared defunct and a committee consisting of Drs. A. E. Ames, J. H. Stuart, W. W. Mayo, H. H. Kimball and C. J. DuBois was appointed to form a new society. The following officers were elected for the ensuing year: Samuel Willey, of St. Paul, president; A. E. Ames, of Minneapolis, vice-president; A. Wharton, of St. Paul, corresponding secretary; E. J. Davis, of Mankato, recording secretary; S. B. Sheardown, of Stockton, treasurer. Also a Board of Censors as follows: J. H. Murphy, St. Paul; N. B. Hill, Minneapolis; W. W. Mayo, Rochester; A. C. Wedge, Albert Lea; J. C. Rhodes, Stillwater. A standing committee composed of A. G. Brisbine, St. Paul; E. C. Rogers, Carver; J. E. Finch, Hastings. The following resolution was introduced by Dr. A. E. Ames, of Minneapolis: "Resolved by the M. S. M. S., assembled, that in case the Legislature now in session desire to protect the citizens of this state from quackery, it is the duty of this society to co-operate with the Legislature, and lend assistance in framing all needful laws on this subject, and that Drs. Willey, Sheardown and Stewart be appointed a committee as the organ of this society for this purpose." I quote the above to show that at the very first meeting of the society and immediately after its organization an effort was made to have laws passed for the regulation of the practice of medicine in the state. It was this determination on the part of our founders that enabled us later to obtain a State Board of Health, a Board of Medical Examiners, and a registration of vital statistics. At this meeting they took care to appoint delegates to represent the society at the next meeting of the A. M. A. to be held in New Orleans in order to bring it immediately into affiliation with the national body. A committee on finance was appointed, who fixed the annual dues at two dollars. The society decided to hold semi-annual meetings in various localities throughout the state—a very wise decision, as it aroused a great deal of interest in the profession and resulted in a large increase in membership. At the semi-annual meetings the vice-president was to deliver an address and an essayist was appointed to read a paper on some previously assigned subject. The first semi-annual meeting was held at Owatonna on June 16th, 1869. Dr. H. H. Kimball was the essayist and his paper on "Rheumatism" gave rise to an animated discussion. Drs. Mattocks and Hewitt read a paper on "Quackery—Its Diagnosis and Treatment." Dr. Blood introduced a resolution that at the next meeting each member report some case occurring in his practice during the past year and that such cases be discussed, also that a committee of one from each county report the number of regular and irregular practitioners in his county. Dr. Willey, the president, offered a prize of fifty dollars for the best essay on "Epidemic and Endemic Diseases in Minnesota," also a prize of fifty dollars for the best essay on Cerebro-Spinal Meningitis, a disease that was very prevalent at that time. A committee consisting of Drs. Milligan, Hill and Richardson was appointed to report on the Origin, Nature and Treatment of Typhoid Fever. The report from the committee of one from each county as to the number of regular and ir-

regular practitioners is interesting, as it shows why the subject of quackery seemed to cause so much discussion. Hennepin County reported eighteen regular and twenty-one irregular practitioners and Ramsey twenty-four regular and twenty-one irregular practitioners. There were but twelve counties in the whole state represented. At the annual meeting in 1870 Dr. Stone brought to the attention of the society a medical journal he had recently established and all were urged to support it; this was the beginning of our Lancet of today. At this meeting Dr. W. W. Sweeney, of Red Wing, was awarded both prizes offered at the previous meeting. He refused to accept the money and placed it in the treasury for future prizes.

In the early days an effort was made to sustain the standard of ethics in the society, as shown by the following resolution introduced by Hennepin County: "Resolved, that any member of this society who shall permit his name to appear in connection with a surgical operation or case of disease in the public prints or who shall furnish any secular journal with any such report for publication shall be guilty of gross violation of the code of ethics and professional honor; that it shall be the duty of the committee on ethics to investigate each case as it appears in print, and report the results at the next meeting of the society. If found guilty he shall be reprimanded for first offense and expelled for the second. Each county society is urged to pass similar resolutions." A constitution and by-laws were adopted at this meeting as well as the code of ethics of the American Medical Association. In his annual address in 1873 Dr. W. W. Mayo calls attention to the inadequate fees allowed expert witnesses and advises some action on the subject. He draws attention to the fact that in some counties three dollars per day is allowed, while in others only one dollar per day is paid. He also refers to the method of selecting experts by opposing counsel and suggests their appointment by the court—a suggestion unhappily not yet followed. In his address in 1875 Dr. N. B. Hill goes farther on the subject of expert witnesses and takes the ground that an expert is not a witness at all, for indeed how can he be a witness except as to his own opinions? A witness, he believes, should arbitrate and not testify, he should be free from alliance with either party, and he also suggests that any questions to be determined be referred to one expert selected by each party, the third by the court and that their decision be accepted by the jury as final.

In 1873 Dr. A. J. Stone reported that up to date five ovariotomies had been performed in the state, with death in each case, and closed the report with the hope that at the next annual meeting at least one successful case would be reported. The first case was operated on by Dr. Murphy in 1850, the next two by Drs. Murphy and Wharton, the fourth by Dr. C. N. Hewitt and the fifth by Dr. Stone. In 1872 at the instance of the society a bill was passed by the Legislature establishing a State Board of Health and one legalizing the obtaining of bodies for dissection. The committee on Medical Education submitted a report, advising a four years course in all medical colleges.

I have quoted thus extensively from the records of the early meetings of the society to show that from its very organization the society was active in the suppression of quackery, in urging the necessity of laws for the protection of the public, in the establishing of a Board of Health, and in the promotion of higher medical education. It is perhaps hard for the physician of today to realize the sacrifice of time and the actual hardship which our founders suffered in attending the meetings—with few facilities for transportation—meeting in winter when travel was interrupted by storms. Still, these men, McGaughey from Winona, Mayo from Rochester, Rosser from Brainerd, Daniels of St. Peter, Tefft of Plainview, Sheardown of Stockton, and many others, came regardless of danger and difficulty, to work not only for the interests of the society, but for the public good. We fortunately have a goodly number of the men still with us, who were active in the organization; Kimball of Minneapolis and Charles Hill of Pine Island never missed a meeting, though the former, in the first covered sleigh seen in these parts, was sometimes lost in the snow of the trackless prairie between here and St. Paul and only the unerring instinct of his faithful white mare brought him safely home. I have a vivid recollection of the speeches at our annual banquets with W. W. Mayo as toastmaster and Drs. Murphy, Wheaton, Stone, McGaughey, Hewitt and others equally witty to respond. The fund of stories and anecdotes seemed inexhaustible. I have no personal recollection of Dr. Willey, the first president, but can say with that exception I have known all the others intimately.

The addresses of former presidents have been

largely suggestions and recommendations for the government and greater usefulness of the association. Following this custom I wish to refer to two questions which today seem to be the most important—the secret division of fees and the question of lodge practice—and I desire to outline the decision of the Judicial Council of the American Medical Association on these subjects. You have no doubt read in our Journal their report, but I think this repetition not out of place. In regard to secret fee-splitting the Judicial Council sent out over six thousand circulars on the subject and received replies from over 50 per cent, which might justly be said to be a report founded on the representative opinion of the members of the American Medical Association. From the statistics gathered it is evident that in the matter of secret splitting of fees no state was exempt. The degree varied greatly in different sections of the country, and the opinions of the local profession for or against it also varied in different regions. It was less prevalent in the east that in the west except in the larger cities of Massachusetts and in that part of Connecticut near New York City. In some sections of New York City it was the rule rather than the exception. In the vote as to whether or not it was justifiable 77.3 per cent were in the negative, 13.4 per cent were in the affirmative, and 9.3 per cent were doubtful. In regard to lodge practice Dr. Bristow in an address before the New York Academy of Medicine shows that in 90 per cent of the adult males of the United States the annual income is less than $800, in 75 per cent less than $600, in 50 per cent less than $500 and in 20 per cent as low as $200. The result of this economic condition on the profession is that hardly 10 per cent of the profession are earning a comfortable income. It is also evident that without the system of lodge practice a large number of people would be unable to secure medical assistance, all of which shows that lodge practice is the inevitable result of the conditions existing at the present day and that under certain circumstances it must be accepted and controlled rather than condemned and shunned. The Judicial Council close their report with the advice that these matters be left to the county societies to regulate and control.

In closing I desire to emphasize the recommendation of my predecessor Dr. Sneve that the association return to the publication of its transactions in book form, as was done from the time of its organization until within a few years. I consider it absolutely essential to the preservation of its history that a record of the progress of the association should be kept together and not scattered through the many months of the year. Under the present plan of publication it is very difficult to obtain any concise idea of the work done during the year. I am thoroughly convinced that this matter should receive immediate attention, and trust that the House of Delegates will consider it at this meeting.

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DECOMPRESSION FOR GLAUCOMA

At the International Congress of Physicians in London in August last, Lieutenant Colonel R. H. Elliot, of the Indian Medical Service of the British Army, read a paper in which he dwelt upon his experiences with the operation which he had devised, that of making a sclerocorneal trephining for the relief of glaucoma. He had described this operation about four years ago, at which time he was just beginning its application. Trephining had been done for glaucoma by others, but not in the practical and successful manner described by Colonel Elliot.

Colonel Elliot very liberally gives great credit to those who had preceded him in their attempts, which have been more or less successful, to secure filtration for glaucoma, among which he names of von Graefe, de Wecker and La Grange, but to the last-named he gives the greatest praise for having been the first to successfully perform a filtration operation involving the removal of a portion of sclera. Two years previously he had reported his own experiences with his trephining method, and the operation was taken up in America, and later in France, Germany and England. During the past two years a number of surgeons in the United States, including some in the Northwest, have successfully performed his operation, but at the meeting of the Congress he was able to report on 900 operations, not a few of which he had been able to follow out.

The operation consists of a dissection of the conjunctiva and the underlying tissues until the sclerotic is exposed. A small trephine is used to open into the anterior chamber to permit the escape of fluid into the adjacent area. This trephing opening is very small, not more than 1 or 2 mm. in diameter. The fluid is drained off sufficiently to allow the tension of the globe to relieve itself, and a continuous drain is established under the conjunctiva, thus preventing a return of tension. The principle is similar to the decompression operations so commonly used in tumors, cysts, and other diseases of the brain where relief of pressure is demanded.

Decompression operations on the skull frequently delay or relieve an oncoming blindness from pressure on the optic chiasm, optic nerves, and optic tracts.

The common result of glaucoma is blindness; and if relieved in time or in some cases even after blindness has developed, if not of too long standing, the sight may be restored in part.

Dr. Elliot has operated on 900 cases and in a certain proportion of the cases the results have been marvelously gratifying. In a large number of his cases the vision has remained stationary, but good enough for ordinary pursuits, and some have greatly improved. Naturally, some cases are incurable, but the operation is worthy of extended trial.

Dr. Frank C. Todd, the chairman of the Ophthalmological Section of the A. M. A., and Dr. John O. McReynolds, vice-president of the American Academy of Ophthalmology, were so impressed by Dr. Elliot's work that they urged him to visit this country and demonstrate his method, and the first place visited after landing in New York was Minneapolis.

Operations were performed at Hill Crest Hospital in Minneapolis before the leading oculists of the Twin Cities, followed later by clinics at the University Hospitals.

Dr. Elliot goes to Chattanooga to address the American Academy of Ophthalmology and Oto-Laryngology.

Dr. Elliot addressed the Ophthalmological Society of Minnesota, members from various parts of the state and surrounding states coming to hear him.

The operation requires the utmost care in preparation and technic. The various surgeons

who have done the operation during the past two years in this country are well-pleased with the results that they have thus far secured. Dr. Elliot considers the operation not difficult and says that any skilled ophthalmologist can perform it. It is an operation which is less difficult than many other eye operations, and yet it should not be done by an unskilled surgeon. This, however, is equally true of other eyeball operations, such as cataract operation, which is considered by Dr. Elliot much more difficult than his operation.

MINNESOTA STATE BOARD OF HEALTH LECTURES

The State Board of Health has offered a course of lectures to the University on public-health matters that promises to assist the University in establishing the Department of Public Health on a sound footing. Heretofore lectures in this branch of medicine have not attracted the attention they deserved.

The proposal, which was accepted by the University, is as follows:

"The State Board of Health offers lectures to the University as follows and on the following conditions:

"Twenty lectures or more on public-health topics.

"Lectures free; attendance compulsory for senior students; catalogue recognition of State Board of Health's lectures; examination and marking on lectures by a University man; arrangements for course to be made by the Dean of Department and the Secretary of Board."

The lectures in such a course would be given on the following subjects:

1. Health Organization — National, State, County, Township, Municipal.
2. Minnesota Public-Health Laws.
3. Minnesota Public-Health Regulations.
4. Vital Statistics.
5. Milk.
6. Meat.
7. Schools:
   a. Medical School-Supervision.
   b. Schoolhouse Construction and Sanitation.
8. Housing Problems.
9. The Relationship of the People to Public-Health Problems.
10. The Care and Control of Communicable Diseases.
11. Laboratory Problems relating to Water, etc.
12. Engineering Problems.

The plan provides for lectures to students of the medical, dental, pharmacy, law, and agricultural schools, and a few lectures will be given in the academic and educational departments.

Plans are in progress for an extension of the course to the students of the State Normal Schools.

All of the lectures outlined, except those on engineering problems, will be given by employees of the State Board of Health not connected with the University. They are planned to dovetail into the course given by University teachers.

These lectures can be made attractive and instructive, and in time will become an important factor in preparing students for future work in hygiene and sanitation.

THE MINNEAPOLIS CITY HOSPTAL AND CITY PHYSICIAN CLEARED BY INVESTIGATION

The recent deplorable investigation of the City Hospital in Minneapolis has been favorably terminated by the report of the special investigator, Dr. John Hornsby, employed by the Civil Service Commission.

The investigation considered all charges brought against the City Hospital and the City Physician in the most painstaking manner. The institution was visited in every department, from the kitchen to the book-keeping department, and a clean bill was rendered. Some minor conditions were criticised, and some suggestions concerning the admission of patients were offered to expedite service. The main charges, however, were found groundless, and a scathing reprimand was embodied in the report against those responsible for the investigation.

When grave charges are brought against a public institution, like a city hospital, it is presumed that those bringing charges must know what they are responsible for; and if they do not, the charges do incalculable injury to the institution.

The poor of a city depend upon the city hospital for care and treatment, and if they lose confidence in the city hospital it requires years to restore their former confiding attitude.

The investigator ranks the Minneapolis City Hospital among a few of the best in the country. The buildings are new and modern, and every-

thing possible for the care of patients may be found under the supervision of the City Physician, Dr. H. O. Collins.

The most unfortunate feature of the investigation was the loss of the incoming pupil nurses for the training-school.

Now that the hospital atmosphere has been cleared, it may be possible next year to secure applicants for the school, but until then the city will have to pay registered nurses full fees to carry on the work.

The hospital will recover from the blow in time, and, in its various departments, it will soon have 700 beds under its roofs. That is proof enough that the hospital offers exceptional opportunities for good work among patients, nurses, and physicians.

THE ANNUAL MEETING OF THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The program for the above meeting, to be held at Mankato on December 2d and 3d, is a great credit to the program committee and to the members of the Southern Association; for it compares favorably with any ever gotten up by our State Association.

Dr. James B. Herrick and Ludwig Hektoen, of Rush Medical College (Chicago University), and Dr. Robert H. Babcock, of the College of Physicians and Surgeons (University of Illinois), will read papers and give clinics. Men from the Mayo Clinic, the University of Minnesota, the Twin Cities, and other parts of the state, appear upon the program; and the leaders of the discussions are likewise selected with care.

In order to expedite the program the first and second papers will be given immediately after the banquet. The rest of the program, including Dr. Babcock's clinic, will begin early on Wednesday, December 3d.

The profession of the State is invited, and it would be well to respond promptly to the invitation in order that the entertainment committee may know how many members are to be entertained. It would also be wise to make hotel reservations in advance. The attendance will probably reach 250.

CORRESPONDENCE

NORTH DAKOTA VITAL STATISTICS, AGAIN

To the Editor:

Dr. J. Grassick, former health officer and registrar of vital statistics of North Dakota, in criticising my communication on "Vital Statistics in North Dakota" does not dispute the figures given by me in his letter to The Journal-Lancet of September 15th.

I will, therefore, leave it with your readers to judge if the cities given were not a fair comparison. The only comparison the doctor makes, to show that the North Dakota rates were not unreasonably high, is with Rochester, Minn. For obvious reasons, not connected with public-health work, the death-rate of Rochester cannot be fairly compared with that of any of the cities named, or even with any other city in the United States.

He says that I failed to mention that the North Dakota law was passed without an appropriation; and then, in the same paragraph, he quotes from a report presented to the State Medical Association, by me, to the effect that the bill was passed without the necessary appropriation to make it effectual, and recommending that an effort be made to secure a sufficient appropriation.

It looks as if the doctor was bound to get me "coming or going" on that count. It would have been more to the point if the doctor could have told us that the State Board of Health had made any effort to get the necessary appropriation.

In the matter of infantile mortality his present position is rather bewildering. He manufactures rates by methods not applicable to a state where the vital-statistics law is not enforced, and not used by the U. S. Bureau of Vital Statistics, and then he says the rate is "exceptionally low."

My attention was first drawn to this feature of public-health work by an article by Dr. Grassick in the North Dakota State Board of Health Bulletin, for November, 1911. He there said:

"In the registration area of the United States according to official records, 19.1 per cent of all deaths are of children under one year of age, while in North Dakota we have 30.7 per cent for the same age. * * * From this it is

quite plain that it is a very serious proposition to be an infant in North Dakota. * * * When we consider that at least 75 per cent of all infantile deaths are from preventable causes it is high time that North Dakota was getting alive to the situation."

My friend, the doctor, says he is gratified at a reference made by me, in an official report, about sanitary conditions in North Dakota.

I am glad of that, and hope yet to be able to testify to some actual beneficial results from the doctor's arduous work as health officer of our state.

Considering the actual conditions at present, however, that the doctor is personally flattered at any reference to sanitary measures and collection of vital statistics in North Dakota, is surely convincing proof of early piety and the marvelous efficacy of the Scotch preacher's prayer: "O Lord, gie us a guid conceit o' oorsels." F. R. Smyth, M. D.

Bismark, N. D., Sept. 26, 1913.

Note.—Dr. Smyth's letter was mislaid in this office, which accounts for the delay in its publication.—The Editors.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The annual meeting of the Academy was held at the Town and Country Club, Wednesday evening, October 8th, Dr. L. A. Nippert, president, being in the chair. There were present 28 members, and also as guests for the evening Dr. Andrews of Mankato, and Dr. E. P. Lyon, Dean of the College of Medicine at the University of Minnesota.

The secretary-treasurer had previously announced that "having served for ten years in that capacity he feels that he should not do so longer, and that he therefore cannot accept renomination."

President Nippert expressed regret at this decision, and proposed a rising vote of thanks to retiring Secretary Dunning, to which the Academy responded unanimously.

The Academy then proceeded to the election of officers for the ensuing year, which resulted as follows: President, Dr. A. Schwyzer, St. Paul; vice-president, Dr. Frank C. Todd, Minneapolis; secretary-treasurer, Dr. Frederick Leavitt, St. Paul; executive committee, Dr. C. M. Carlaw, Minneapolis; Dr. W. A. Dennis, St. Paul; Dr. H. B. Sweetser, Minneapolis.

Dr. Nippert, retiring president, was called away at this time and president-elect Dr. Schwyzer took the chair.

Dr. Haldor Sneve spoke briefly of the unfortunate situation of the State Inebriate Institution at Willmar, and the determined effort of some persons to defeat its purposes. He therefore moved that a committee of three be appointed to wait upon the Governor, and enter the protest of the Academy against the proposition of the Board of Control to convert it into a hospital for the insane. The motion was carried unanimously, and the president appointed upon the committee, Drs. Haldor Sneve, A. S. Hamilton, and W. A. Jones.

The secretary-treasurer recommended that the assessment for current expenses for the coming year be $8.00 per capita. On motion this recommendation was adopted.

In clinical session Dr. Dunsmoor presented a very interesting case of blastomycosis in a man of middle age. The skin lesions are large and about the left side of the face, the left hand and forearm, and the left knee. It was stated that on microscopic examination of slides prepared from the ulcers, both blastocytes and tubercle bacilli were found.

Dr. F. R. Wright presented the following case-report:

DISLOCATIONS OF THE PELVIS

It was formerly believed that pure separations of the pubic or sacro-iliac symphyses could occur, and Malgaigne suggested the following classification:

1. Dislocations of the pubic symphysis.
2. Dislocations of the sacro-iliac symphysis.
3. Dislocations of these two symphyses or of the ilium.
4. Dislocations of the two sacro-iliac symphyses.
5. Dislocations of the two sacro-iliac and of the pubic symphyses simultaneously.
6. Dislocations of the coccyx.

The majority of writers now believe that the above classification of Malgaigne should be dropped. A diastasis or dislocation at one of the symphyses is extremely rare, and it is impossible to recognize it during life. The cases which were formerly described as pure dislocations are now recognized as having been cases of fractures close to the symphyses, with dislocation of the fragments, as Stolper has recently pointed out, resembling in type the fracture-dislocations of the spine. Dislocation of the coccyx is the only one of the classifications which is a true dislocation.

A dislocation or diastasis at the symphysis pubis is also infrequent, but does unquestionably occur.

A true dislocation, that is a displacement without

fracture, may never occur at the symphysis pubis, but that a separation of the two pubic bones does occur is proven by the following case:

On April 30th, E. L., a railroad switchman, in opening a switch having a horizontal lever, was pulling the lever toward himself when the train coming down the track struck the rail and suddenly threw the switch open. The end of the lever struck him on the lower part of the abdomen and knocked him down. He was picked up and sent to the hospital where it was discovered that he had a lacerated wound of perineum and scrotum. The hospital record gives no other diagnosis except that it was noted in the history that he had a gonorrhea. He left this hospital on May 11th. The hospital records say recovered.

He went directly to a railroad hospital outside of Minneapolis. I asked this hospital for a record of his case, but they did not answer my letter, so I have only his statements as to their diagnosis. He says that he remained in this hospital until the middle of July, when he was told that his trouble was gonorrheal rheumatism, and that the hospital did not take care of such cases, and he was discharged.

He came to me on crutches on July 26th, complaining of pain in the anterior part of his left thigh, which was increased by putting weight on his foot, and an inability to lift his foot from the ground, that is, to flex the thigh on his body. Examination of the pelvis disclosed nothing abnormal. With the patient lying on his back, all movements in the left hip were free and absolutely painless.

An x-ray picture showed, instead of the suspected fracture, a separation of the symphysis pubis. A three-inch adhesive plaster bandage was drawn tightly around the pelvis, and all symptoms immediately disappeared, and he was able to move the leg and stand his weight on it without pain.

The patient was kept on crutches for three weeks, when the plaster bandage was taken off, and he was discharged apparently cured.

Dr. A. Schwyzer, in discussing Dr. Wright's case, referred to a case of separation of the symphysis pubis in a woman at confinement. Later on, he had found a distinct grating of the surfaces by placing his hand over the part when she moved about. He cut down upon the symphysis, removed these roughened surfaces, wired the parts together, and thereby secured complete recovery.

Dr. Dennis stated that in one case of his separation of the symphysis had occurred at the first confinement. Union took place, however, and later on when he had attended her in a second confinement there had been no recurrence of the trouble.

Dr. Litzenberg exhibited a specimen of fibroid uterus, which had been removed by hysterectomy while three months pregnant. The fibroid was large, filling nearly the entire pelvis, and section of the tumor revealed the fetus intact lying in the position of breech presentation.

He also presented a specimen comprising a seven months fetus with the placenta and membranes intact. The point of interest is the unusually advanced stage for the intact specimen.

Dr. Christison reported two recent cases of typhoid in children, of unusual features. One, a girl of two and one-half years, became rigid on the fifth day of illness, and presented the appearance of meningitis. There was complete opisthotonus. Lumbar puncture was made, and nine drachms of cerebrospinal fluid drawn off. There was complete relaxation within forty-eight hours. About this time it was discovered that the child was blind. In two weeks however, the vision was completely restored. The Widal test was positive.

The second case was that of a child two years seven months old. Following indulgence in a feast of ice-cream, illness had been sudden and violent, the temperature rising to 106°, and the condition seemed like that of gastro-enteritis, and return to what seemed a normal state was prompt. A few days later, however, it was discovered that the child was running a temperature of 99° in the morning and 104° in the evening, although apparently feeling perfectly well.

The Widal test proved positive.

Dr. Colvin exhibited the fresh specimen of a gall-bladder removed by operation. It presented an unusual feature in the fact that while there was acute inflammation of the lower part of the cystic duct, the bladder itself was not inflamed; and he found difficulty in locating the opening from the bladder. It was finally revealed that there was division in the bladder by a band across it, and the opening was found between the upper and lower pocket. The question in his mind was as to whether the band was the result of inflammatory process or a natural septum. He is of the opinion that it is the latter.

Dr. Law referred briefly to a point in the technic of Dr. Charles Mayo which he had recently observed. In operation for removal of the gall-bladder, a large raw surface had resulted, and in order to cover it in he had drawn the round ligament of the liver into the place and firmly stitched it there, thereby effectually covering it.

Dr. H. B. Sweetser reported an operation for the relief of prolapse of the rectum. A woman who had a rectal prolapse of six inches (of the

fold), was operated on one and one-half years ago by the De la Bar method. The result was apparently a success, but, as is usually the case, there was recurrence within two months. The woman wanted relief and urged him to try again. He had gone carefully into the literature and considered all of the proposed procedures, but none seemed satisfactory. He had finally, however, adopted the suggestion of Muscovich to close in the sack (the cul de sac of Douglas), by the abdominal operation. This he did and now, two and one-half months after the operation, it appears to be a success. Muscovich reports nine cases operated on by this method, six of which were successful.

Dr. Cross reported a case of chloral habit. The individual had taken thirty-six grs. of chloral, with an equal amount of bromide each night for three years. Recently he has developed a pronounced optic neuritis. The doctor raised the query as to what relation there may be between the neuritis and the chloral as to etiology. He also called attention to the fact that great numbers of people are using veronal and trional, which are being handed out freely by the druggists, and that great harm is being done by this indiscriminate use of these drugs.

Dr. Adair reported a case presenting features of unusual interest in the new-born. The mother who was confined at the University Hospital had exophthalmic goiter. The child was born with the thyroid gland so enlarged that it was necessary to throw its head over a pillow in order that it might breathe freely. The doctor said he succeeded in keeping the child away from the surgeons, and in two weeks the gland had shrunken to practically the normal size. He also reported a case of double hydrocele.

Dr. Dennis reported a case which presented many of the features of appendicitis, but after opening the abdomen and finding a good appendix he had explored farther and found a typical perforation of the ileum from a typhoid ulcer. It was a case of walking typhoid.

Dr. Wright reported a case of gonorrheal rheumatism, which came on remarkably early after the initial infection. The infection occurred on a Thursday, and the rheumatism developed on the following Tuesday. It extended rapidly to all the joints except the right elbow and hand, and the boy was laid up for fifteen months.

Dr. H. B. Sweetser raised the question as to whether it may not have been an ordinary rheumatism.

Dr. Wright felt sure it was not. Dr. Cross said that urethritis may occur with ordinary rheumatism which will clear up under the salicylates.

Dr. Burch reported briefly 12 cases of glaucoma treated by the trephine operation, to produce filtration or permanent drainage into the anterior chamber. In the milder cases the lowering of tension was satisfactory and continuous. In the more severe cases it was less so.

The Academy adjourned at 10:15.

A. W. Dunning, M.D.,
Retiring Secretary.

THIRD DISTRICT SOCIETY OF SOUTH DAKOTA

At a meeting of the Society held in the office of Dr. N. L. Bailey, of Lake Preston, the following officers were elected: President, Dr. N. K. Hopkins, Arlington; vice-president, Dr. E. H. Grove, Hetland; secretary-treasurer, Dr. L. N. Grosvenor, Huron; censor, Dr. B. T. Green, Brookings; delegate, Dr. H. H. Frudenfeld, Madison.

The following program was presented:

"Hernia," by Dr. B. H. Sprague, Huron; "Tuberculin in Phlyctenular Conditions of the Eye," by Dr. Geo. Edwards, Bruce; "Surgery in General Practice," by Dr. B. T. Green, Brookings; "Arteriosclerosis," by Dr. E. E. Torwick, Volga; "An Epidemic of Infectious Jaundice," by Dr. E. H. Grove, Hetland.

Seventeen doctors were present and enjoyed a most profitable meeting.

Lorenzo N. Grosvenor, M.D., Secretary.

MISCELLANY

THE AMERICAN COLLEGE OF SURGEONS

Presented by the Board of Regents of the College

What is the American College of Surgeons, why should it be, what does it intend, what has it done?

This note is in answer to these often-asked questions.

American surgery at its best is the best surgery of today, but the average of surgery in this country is not only far below this standard but below even a reasonable standard.

This condition of affairs is largely the result of general failure to appreciate the qualifications and conditions needful for good surgery.

The very fact that surgery has so advanced in recent years has tended to loss of perspective.

Just because the art has advanced, its practitioners must be held to a stricter accounting of fitness and of results attained.

The profession has been no more to blame than the lay public, perhaps; certainly the vast multiplication of small hospitals, an important factor, is not to be laid at the doctor's door, but before the public shall gain a wider perspective, the physician and surgeon must lead the way.

The time seems ripe for something like a standardization of surgery,—some understanding of the responsibilities of surgical work, some recognition of the difference between surgical work and medical practice, some definition of the special training and experience that a doctor should have before he undertakes the responsibilities of the graver operations of modern surgery.

Today is the day of specialization in all lines of endeavor. No one should be more really a specialist than the surgeon.

The American College of Surgeons, about to hold its first formal convocation, is simply the expression of an attempt to bring about the setting of a standard for surgery in this country, and to work for a gradual raising of this standard.

The intent is to establish the standard, to begin with, by recognizing those men now in practice whose training, experience, and character entitle them to be considered specialists in surgery or in the strictly surgical specialties.

This choice must be independent of affiliations with different schools of practice, or with institutions of whatever groups of men,—a choice based on individual fitness alone.

The new College is fortunate in its absolutely democratic origin.

In November, 1912, at a session of the "Clinical Congress of Surgeons" in New York,—a body of men having no cohesion save their common interest in surgery,—democratic and open, not a selective body,—it was proposed and voted that the presiding officer appoint a committee to consider the feasibility of such a College, the committee to act wholly independently.

The president appointed ten of those present, men from all over the country, with Canada represented. After consideration, this committee presented its plans to representative groups of active surgeons in a score of large cities all over the country, and, since these plans met approval, the groups of men from these cities were asked to go to Washington last May, to meet and to proceed to organize. Accordingly, in May, 1913, three hundred and fifty men, from Toronto to New Orleans, from Boston to San Francisco, and from most of the large towns between, met with the committee, organized the College, adopted a constitution and by-laws, elected officers and laid out plans for the future.

Much of the work of the College was vested in a Board of Regents, fifteen in number, elected at that time. In the selection of candidates for admission the Regents are supported by a Central Committee on Credentials, with separate sub-committees for each state and province.

At the convocation of the American College on November 13th, to be opened by the President of the Royal College of Surgeons of England, Sir Rickman Godlee, the fellowship will be granted to nearly a thousand men from the States and Canada, carefully picked from among many applicants representing, we believe, the best in surgery and the surgical specialties.

The movement has so far met with a gratifying response and interest.

Other Fellows will be admitted, after scrutiny, for a year to come.

After that, it is the intention to admit by examination only.

In time this scheme will result in the formation of a body like the Royal College; in time the standard set will be more definite and will tend to rise steadily.

No standard of academic examination could be applied to those now in active service.

Those who have acted for the College can only ask the profession and ask the public to believe that they have used their best judgment in choosing among those who have asked to join this movement.

It has been no light task; it cannot have been done perfectly; it has often been done against personal friendships, as well as in spite of prejudices; those responsible have done the best they could or knew in their attempt to pick men really qualified.

There has been criticism—there will be more criticism. There are two special points of attack: first, because the College is to be a "guild,"—perhaps it is, in a sense, but always an open guild, open to all who can show fitness, wherever they come from; second, because it excludes men who, though not specialists, are doing good work in surgery; there are such men, but the College does nothing to them, the failure to include them means merely that they are not, with few exceptions, the men best fitted to do the work in raising the standards that this College has set for its task.

As for the practitioner of medicine: We believe that our action will help him to gain once more the position which is not always granted him today, that of the trusted adviser of the family, and we believe that he will be the gainer if his patients learn not to demand work of him outside his chosen field.

The field of medicine offers a field not smaller or less worthy than that of surgery; they are not merely the same field.

A word more and we have done: the College has taken up one evil, so rampant in certain states as to threaten the standing of the profession as a whole, both practitioners and specialists; namely, that form of commercialism known as fee-splitting.

The College will not knowingly select for, *or retain within*, its ranks anyone who practices fee-splitting, directly or by subterfuge.

EXONERATION OF DR. F. W. FREYBERG

At the meeting of the Mitchell District Medical Society held September 22, 1913, the following resolutions were passed:

We, the members of the Mitchell District Medical Society, having heard the full explanation by Dr. F. W. Freyberg concerning the article printed in the *Aberdeen Daily American* of June 1, 1913, and, further, having known him as an ethical physician and mem-

ber of this Society for many years, do hereby exonerate him from any blame in connection with this newspaper article;

And, furthermore, that these resolutions be spread upon the minutes of the Society, and that a copy be mailed to THE JOURNAL-LANCET for publication in that organ. (Signed)

B. A. ROBB, M. D.,
E. F. REAMER, M. D.,
Committee.

BOOK NOTICES

BLOOD-PRESSURE IN GENERAL PRACTICE. By Percival Nicholson, M. D. 157 pages, 7 illustrations. Cloth, $1.50. J. B. Lippincott Company, Philadelphia, 1913.

The author has presented in this small volume a summary of the recent literature on blood-pressure. Without going into too much detail he has covered the ground perhaps as satisfactorily as can be expected in so limited a space.

The first part of the book is taken up with a discussion of different kinds of sphygmomanometers and the methods of determining blood-pressures. After the normal and physiological variations in blood-pressure are dealt with, the author discusses, briefly, in alphabetical order, the diseases and drugs causing hypertension and hypotension. A few pages are also devoted to the effects of operations and anesthesia, and to blood-pressure in its relation to life insurance.

As the title indicates, this work is for the general practitioner, and many practical points are clearly emphasized. A valuable feature of the book is that the salient features of the subject as presented by the author are printed in italics. —MORRISON.

DISEASES OF THE STOMACH, INTESTINES, AND PANCREAS. By Robert Coleman Kemp, M. D. Second edition, revised and enlarged. Octavo of 1,021 pages, with 388 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $6.50 net; half morocco, $8.00 net.

The second edition of this admirable work hardly needs an introduction to the profession. Some minor errors have been corrected, various subjects brought up to date, and several new ones introduced. Chapters on the colon bacillus injection, and on diseases of the pancreas, have been added, and the section on duodenal ulcer has been rewritten.

A whole chapter has been devoted to diverticulitis. The newest methods of diagnosis, with the exception of radiography, which, unfortunately, is hardly considered, are clearly described. The accepted and latest treatment is discussed in detail, and that recommended which in the author's wide clinical experience has proven to be most efficient.

The author's literary style is clear and interesting, and the volume should be a valuable addition to the physicians' library, especially to those who have not been able to take recent post-graduate study.

—GARDNER.

THE OPERATING-ROOM AND THE PATIENT. By Russell S. Fowler, M. D., Chief Surgeon First Division, German Hospital, Brooklyn, New York. Third edition, rewritten and enlarged. Octavo volume of 611 pages with 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, $3.50 net.

This manual is a practical work on everything pertaining to the operating-room, the pre- and post-operative treatment of patients. As such, it represents tersely, but well, our present knowledge of these subjects.

The first chapters deal with the operating-room instruments and supplies, bandaging, anesthesia, etc. The later ones deal with the post-operative treatment of the present-day operations.

The work is decidedly up to date and of maximum usefulness to the operating nurse or interne, as well as to the general surgeon. —ROBITSHEK.

THE PRACTICAL MEDICINE SERIES. Vol. XI. Edited by J. B. Murphy, Chicago: The Year Book Publishing Co..

This volume, giving short abstracts of much of the most important literature of the past year, shows the same keen judgment in the selection of material as has been exhibited by the author in previous issues.

The subject of anesthesia occupies the first thirty pages, and the field is very well covered, although those who have had the privilege of watching the work of Crile will be disappointed in finding no discussion of anoci-association and the use of quinine and urea hydrochlorate for the prevention of post-operative pain.

A comparatively large amount of space is given to the subject of "Malignant Tumors," and some of the newer methods which are being tried are discussed. Serum treatment, selenium, colloidal copper, mesothorium and thorium-electro coagulation are considered, but his conclusion is that early diagnosis and complete excision, except in the case of sarcoma, where Coley's fluid seems to have merit, still offer the only hope of cure and not an encouraging one at that.

The chapter on "Bones and Joints" touches upon the most recent developments in this branch of surgery, and the author's own work, which is undoubtedly the most brilliant of this period, is referred to in some detail. His persistent forceful pleading for better methods in the handling of acute osteomyelitis and septic arthritis and cases of ununited fracture, should point the way to better results.

The editor's comments are timely throughout, and enhance the value of the text to no small degree.

—FARR.

SURGERY OF THE EYE. By Ervin Torok, M. D., surgeon to the New York Ophthalmic and Aural Institute, and Gerald H. Grout, M. D., Instructor in the Eye Department, Vanderbilt Clinic, etc. Octavo, 507 pages, with 509 original illustrations, 101 in colors and 2 colored plates. Cloth, $4.50 net. Philadelphia and New York: Lea & Febiger, 1913.

The object of this work evidently is to present adequate illustrations with the text. It is a book of 468 pages. The illustrations are 509 in number, averaging more than one to every page, and they are original and very good. Different methods of holding the instruments in the various operations on the eye are shown. The European method is contrasted with the American method; *e. g.*, on page 191 is shown the American method of holding the Graefe knife for anterior sclerotomy; below it is shown the European method. On the following page are three diagramatic figures, illus-

trating anterior sclerotomy,—first step, second step, and third step. The operation of Iredectomy is illustrated by 34 photogravures and diagrammatic figures. Operations for entropion and trichiasis carry 35 illustrations.

The methods of six different noted operators for remedying ptosis are adequately illustrated. Trachoma operations on the lids are well featured in 9 illustrations.

The text is clear and concise, and the descriptions of the various operations are quite lucid. Altogether it is a book valuable to the student as well as to the surgeon. —CAMPBELL.

NEWS ITEMS

Dr. C. B. Fraser will locate at Vesta, Minn.

Dr. F. L. Kling, of Minneapolis, has moved to Elbow Lake.

Tag Day in Minneapolis gave the visiting nurses $25,000.

Dr. L. C. Lang, of Lake Mills, Ia., has moved to Minot, N. D.

Dr. W. M. Robertson, of Chicago, has located at Neche, N. D.

Dr. M. J. Fiksdal, of Bristol, S. D., will locate at Webster, S. D.

Dr. R. J. Henderson will move from Outlook, Mont., to Pepin, Wis.

Dr. A. O. Allen, of Mountain Lake, died last week, at the age of 57.

Dr. F. D. Manz, of St. Paul, is considering locating at Fargo, N. D.

Dr. Archa E. Wilcox has severed his connection with the Hill Crest Hospital of Minneapolis.

Dr. G. G. Haight, of Audubon, will move to Detroit. Dr. Haight is a graduate of the Baltimore Medical College.

Dr. Henry Westenmann, a retired physician, died last month at Mankato. He was born in Germany 86 years ago.

Dr. Geo. W. Lemke, of St. Paul, has been acquitted of all charges of misusing the U. S. mails to tender illegal advice.

Dr. Harry W. Miller, of Casselton, N. D., was married on September 20th to Miss Mabel Fern Gunkel, of the same place.

Dr. Russell F. Goodwin, aged 71, of Minneapolis, was run down by an automobile and received bruises that may result seriously.

Dr. F. W. Penhall, of Morton, has been appointed Indian physician by the U. S. Government to treat the Redwood County Indians.

Drs. Alfred and William Donahoe, recent graduates of the College of Physicians and Surgeons of Chicago, have located at Sioux Falls.

The visit to the Twin Cities of Colonel R. H. Elliot to demonstrate the technic of his operation for glaucoma, is noticed in our editorial columns.

Dr. Gronvold, of Adams, N. D., has sold his practice and will go to Fargo, N. D., and form a partnership with Drs. P. H. Burton and W. G. Brown.

Dr. E. E. Webber, of Chisholm, is installing beds and equipment for a small hospital. His increasing practice makes it necessary to provide for patients.

Dr. G. W. Kirmse, of Frazee, will locate in Minneapolis for the winter, and in the spring will go to Germany to complete his course in specialty work.

Dr. W. G. Eisenman, of the Rood Hospital, Chisholm, was married last month in Chicago to Miss Isabel Hinkle, formerly a teacher in the Hibbing schools.

Dr. J. W. Williamson has sold his drug store at Murdo, S. D., to H. D. Jehu, and will move to Lewistown, Mont., where he will resume the practice of medicine.

Dr. J. Bursma has moved from New Salem, N. D., to Fessenden, N. D., and taken over the practice of Dr. F. A. Douglass, who will soon leave to locate in Chicago.

Dr. Robert Middlebrook, of Kansas City, will locate at Hannah, N. D. He is a graduate of Yale, 1907, and took post-graduate work at Jefferson Medical College, 1912.

Dr. E. W. Senn, of Slayton, has bought the practice of Dr. McEachern at Sandstone, Minn. Dr. Senn is a graduate of the State University and practiced at Slayton for eight years.

The management of the City Hospital has been exonerated from all charge made against the hospital in the recent investigation. The matter is treated in our editorial columns.

Dr. Monte Stern, son of G. A. Stern, of Sioux Falls, S. D., who has spent the past two years studying surgery in Vienna, has returned to Sioux Falls and will practice his profession.

Dr. T. Scholdager, of Butte, Mont., has gone to Choteau, Mont., to locate and will assist Dr. Bateman. He is a graduate of Royal University, of Christiania, Norway, and took graduate work at Vienna and other noted schools.

The suit of Cassie R. Moses against St. Barnabas Hospital, Minneapolis, for $12,800, who alleged the contraction of cystitis following neglect on the part of doctors and nurses to sterilize operating instruments, was dismissed by the court.

The school board of Virginia, Minn., after much discussion of the subject decided not to hire a physician for medical inspection in the schools of that city, but favored a visiting nurse and recommends that the health board make any inspection necessary.

Thanksgiving Day, November 27th, is fixed as the date for the dedication of the West Side General Hospital, St. Paul, by the Evangelical Hospital and Deaconess Home Association. The hospital is modern throughout. A $900 sterilizing plant will be installed.

Dr. J. A. Hohf, of Tripp, S. D., has sold his practice to Dr. R. H. Payne, of Dupree, S. D., and is now doing post-graduate work in Philadelphia. On his return he will go into practice with his brother Dr. S. M. Hohf, at Yankton, S. D., specializing in eye, ear, nose, and throat work.

The American College of Surgeons holds its first formal meeting for conferring fellowships at Chicago on November 13th. Sir Rickman Godlee, president of the Royal College of Surgeons of England, will deliver an address. About 1,300 applications for membership have been filed.

The Tri-County Medical Association held a meeting at New Rockford, N. D., October 2. Dr. J. H. Vallancey was elected to fill the unexpired term of Secretary McClusky, of Carrington, who resigned. Excellent papers were read by Dr. Moore, of Sykeston, and Dr. Watson, of New Rockford.

The annual meeting of the Southern Minnesota Medical Association will be held at Mankato on December 2nd and 3rd. Dr. Jas. B. Herrick, of the Rush Medical College, will talk on "The Bundle of His," with lantern slides, and Dr. Ludvig Hektoen, of the same school, will discuss "The Cause of the Crisis in Pneumonia." Dr. A. F. Schmitt, of Mankato, is chairman of the program committee.

Recommendations made by Dr. John A. Hornsby, of Chicago, expert investigator of Minneapolis City Hospitals for the Civil Service Commission, are to be considered by the Board of Charities and Correction at a special meeting to be called by Mayor Wallace Nye. The mayor says he desires the adoption of the recommendations of the expert for simplifying the admission of patients and for employment of extra help.

The quarterly meeting of the Park Region District and County Medical Society was held at Fergus Falls, October 8th, at the Grand Hotel. The opening address was given by Dr. O'Brien, of St. Paul. Dr. Ellis, of Alexandria, read a paper on "Sarcoma, a Form of Cancer." A banquet was served in the evening. The next meeting of the Association will be the annual meeting, which will be held in January at Fergus Falls.

FINE MINNEAPOLIS OPENING FOR PHYSICIAN

Physician's twelve-room residence with offices for rent in the business center; six rooms now rented. Complete with household and office furniture. Electric wall-plate, static machine, microscope, vibrators, and other instruments for sale. Also electric automobile. Garage with charging-outfit for rent, or charging outfit for sale. Write or call 825 First Ave. So., Minneapolis.

HOSPITAL FOR SALE

A well equipped hospital of 16-bed capacity in a town of 4,000. Excellent location for an enterprising M. D. or surgeon. Terms reasonable. Address M. S., care of this office.

FOR SALE

Five-room office, with first-class office furniture and fixtures, in city of 1,000 population. Practice from $5,000 to $6,000. Collections about 85 per cent. In a good farming country. City has electric lights, water works and sewer. Competition very light. One who can do surgery will increase practice a whole lot. In western part of North Dakota. Address O. A., this office.

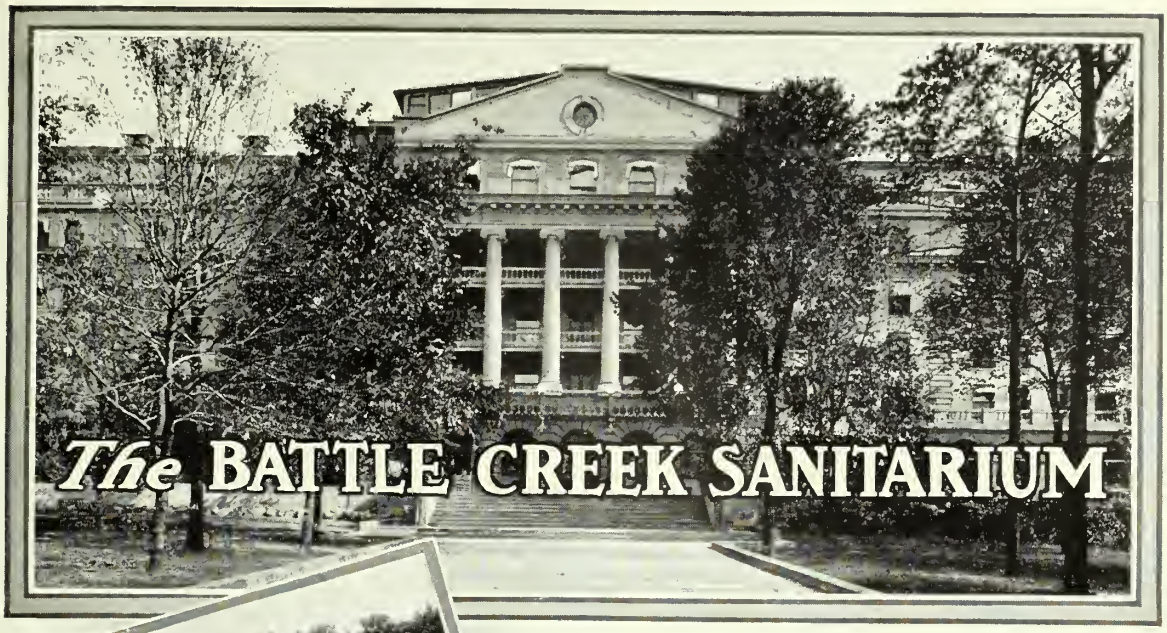
A YOUNG PHYSICIAN WANTED

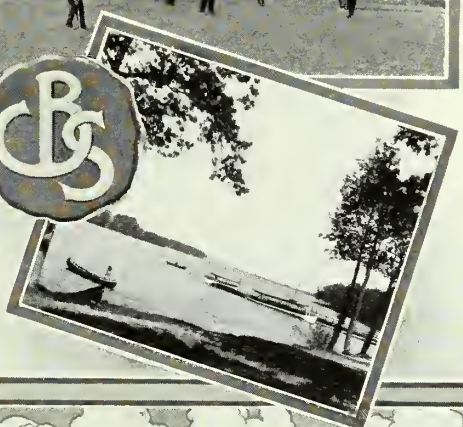
A young man for assistant. Must be Scandinavian and able to do refractive work. State monthly salary wanted. Address, for particulars, D. B., care this office.

PRACTICE FOR SALE

I have an established practice of $4,500 in one of Wisconsin's best towns of 1,000 population. Splendid schools, churches, electric lights, sewer and city water. Practice can easily be increased by doing surgery. Am leaving state. Price, $800 for practice and office fixtures. Norwegian preferred. Address B. G., care of this office.

Doctor: If you want practical post-graduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.





A REAL "REST" VACATION

Doctor, some of your patients may be needing a vacation soon—a change of scene, restful diversion and a taste of the outdoor life.

We invite such patients to Battle Creek. Here everything is scientifically planned for rest, recreation and health improvement; the visitor eats, sleeps and lives daily for health in a wholesome, uplifting environment.

The outdoor life, tennis, golf, volley-ball, outdoor swimming, riding, driving, motoring, sailing, tramping—these and many other pleasant recreations are encouraged for suitable cases by the most abundant facilities and favorable conditions. Graduated exercises for feeble patients.

Beautiful expanses of shaded lawn, restful views of charming vistas and the delightful summer climate for which Michigan is noted, all combine to make Battle Creek an ideal resting spot.

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PUBLISHER'S DEPARTMENT

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The name "Allison" on any piece of furniture—table, cabinet, chair, etc.—means—and it is well known to mean—excellence of design and high character of workmanship and material.

The "Allison" line is much larger than many physicians know, and so we suggest that our readers ask the company for their new catalogue. Address W. D. Allison Co., Indianapolis, Ind.

X-RAY PLATES

In x-ray work the plate is as important as the instrument in surgery—even more so, for, very often, with a fairly good plate, the photograph cannot be read. Only the best plate should be used in operations upon which health and life may depend.

The Forbes Dry Plate Co., of Rochester, N. Y., claim to make the finest plate yet produced, and their general agents, Messrs. Noyes Bros. & Cutler of St. Paul would sell nothing else.

THE LUX COMPANY

It is with real pleasure that we again commend to our readers the above company, which manufactures vulcanized fibre limbs, orthopedic appliances, elastic surgical goods, trusses, special instruments, etc. The company is one of those who do things well and make their patrons feel that what they get could not have been better, which is a rare and delightful feeling.

They are located at 215 So. 7th St., Minneapolis, and will be pleased to have our readers call upon them or write them for anything in their line. They are dependable.

RED WING'S GERMAN LUTHERAN HOSPITAL

St. John's German Lutheran Hospital of Red Wing was established in 1903 and now possesses an exceedingly attractive hospital building, which is commodious, home-like, and thoroughly equipped as a modern hospital. It maintains a training-school for nurses, and is in all respects a hospital of which the City may well be proud.

The work of the German Lutherans in establishing hospitals of this character is to be highly commended.

The staff of the hospital are members of the State Medical Association.

PLUTO WATER

At French Lick, Indiana, is the home of one of America's "institutions." Around its mineral springs has grown up a health resort hardly second to any other in America. The principal hotel is six stories in height and accommodates 800 guests. It is surrounded by beautiful lawns, and is an all-year palace hotel. The golf links, tennis courts, etc., are all that the devotees of these means of recreation can demand.

But its waters are the thing. The most famous of these is "Pluto." This water is generally known to the profession simply as a laxative, although it is far more than this. It is excellent in most gastro-intestinal disorders, and their manifestations, such as skin diseases, etc.

The two or three beautiful pamphlets issued by the Company are very attractive, and no physician can fail to find interest in them. The French Lick Springs Hotel Co., French Lick, Ind., will send them to anyone applying for them by postal card or letter.

ADVANCES IN SURGICAL ELASTIC APPLIANCES

Messrs. Sharp & Smith, of Chicago, the well-known manufacturers of surgical elastic goods, desire to call attention to their announcement, in another column of this issue, concerning their new wool and rubber fabric, which they believe to be the best fabric yet devised for abdominal supporters, knee and elbow caps, leggings, etc.

"Wolastic" is made of gray wool interwoven with rubber, and thus possesses the special qualities required in surgical elastic appliances.

The firm's standing and record for skill give guarantee that their work will always satisfy their customers.

INSTRUMENT REPAIRING AND NICKEL-PLATING

Many physicians, superintendents of hospitals, and others of our readers will be pleased to see the "ad" relating to nickel-plating and repairing which we carry on another page for the Northwestern Safe Manufacturing Co., of Minneapolis.

Much good apparatus is often discarded for the reason that the finish has become tarnished or that there is no accessible firm to repair it.

The Northwestern Safe Manufacturing Co. requires a special nickel-plating plant for the high-grade work it does on its safes and vault-doors, and has decided to extend the service of its plant to those who may need high-class work at reasonable prices.

The publishers of THE JOURNAL-LANCET are pleased to say they have known this firm for many years and can highly recommend it to our readers.

SULPHUR VAPOR-BATHS

Various vapor baths, followed by scientific massage, have long been known to be exceedingly effective in stimulating to action the secretory organs of the body, thus throwing off certain poisons with marked therapeutic results. The sulphur-vapor baths, whether produced naturally by hot springs or artificially, have proven effective in certain so-called rheumatic disorders. Some foreign health resorts, so-called "Spas," have become famous with nothing but a vapor bath to depend upon.

A company in Minneapolis (The Sulphur Vapor-Bath Co., 2526 Hennepin Ave.) is giving these baths with massage, along well-tried lines, and they seem to be doing excellent work. Some of our leading physicians regularly send their patients, with careful and proper instructions as to the condition and need of such patients, and these physicians report perfect satisfaction with the treatment.

An evening service for both men and women is maintained, with both male and female attendants.

The institution seems to be conducted upon strict lines.

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NOTES FROM SOME OF THE SURGICAL CLINICS IN GERMANY, BELGIUM, AND GREAT BRITAIN—1913

By WILLIAM J. MAYO, M. D.
ROCHESTER, MINNESOTA

When I visited the clinics of Germany, Austria, and Switzerland in 1912, several of the men whom I most desired to see were away on vacations. I therefore supplemented my trip (in May) by a short visit to the clinics of the surgeons previously missed. I then spent some time in Belgium and Great Britain.

Prof. Rotter at the Hedwig Hospital and Prof. Bumm of the University Clinic in Berlin are doing extraordinarily good work along special lines, that is, cancer of the rectum and cancer of the uterus, respectively. Through the courtesy and kindness of these gentlemen I was enabled to observe the work with some exactitude.

Rotter has contributed largely to our fund of knowledge concerning cancer of the rectum. His operation is a combined posterior-abdominal method in one stage, with a view, on the one hand, to a thorough removal of the glands after an intraperitoneal exploration and, on the other hand, to conservation of the muscular control of the rectum. The excellent method of Hochenegg, which I have previously described,* is a single operation by the posterior route and in the actual removal of the local disease leaves little to be desired, but no exploration of the peritoneal cavity is made for metastasis, and, so far as function is concerned, successful results would probably be somewhat less than by Rotter's technic.

Rotter operates with the patient in the reverse Trendelenburg position. A posterior midline incision is made passing to the left side of the anus with an osteoplastic flap of the coccyx turned to the right. The entire rectum, with the exception of the anal canal, is dissected free of its attachments until mobilization is so complete that it can be drawn out from behind. The patient is turned on his right side, and a long abdominal incision is made through the left rectus muscle, beginning two inches above the umbilicus and extending down to the pubic bone. The sigmoid is loosened from its lateral attachments, and, when thoroughly mobilized, the vessels are tied, the attachments cut, and the tumor with the rectum and lower sigmoid drawn out through the sacral wound. The peritoneum is carefully resutured to the sigmoid at a point where vascularization is complete, and the abdomen is closed. The patient is then turned back to the first position, and the tumor, rectum (except the anal canal), and lower sigmoid are excised. A large tube is sutured into the cut end of the sigmoid and the entire wound packed with gauze, which remains in place from eight to ten days. When granulations have formed to protect the wound, the lower end of the sigmoid is sutured to the preserved anal canal, and the osteoplastic flap is replaced. A fistula often forms, for the cure of which Rotter later turns a large flap from the buttock.

Prof. Rotter is a surgeon of large experience and has especially prepared himself for this particular operation. His aseptic technic, which is of the best, is carried out rigorously, and his

*Journal-Lancet, Aug. 15, 1912, pp. 423-7.

results are good. Without appearing to hurry, his movements are rapid, and the operation which I witnessed was completed in a little more than an hour. I was very much impressed with his ability. In his hands the method seemed efficient and safe, but it is beyond the average operator.

As I look back over experiences in operating for cancer of the rectum in our clinic, I am tempted to say, and probably without much exaggeration, that a large percentage of the operative deaths and recurrences has been due to an attempt to conserve function, and, therefore, I can sympathize with those surgeons who believe that patients must sacrifice control in practically all cases as the price they pay for a reasonable chance of cure. Yet, when we have removed such a rectum, and microscopic investigation has demonstrated that the entire muscular apparatus through which control comes is free from disease, we hesitate to accept the view that loss of control is a necessary part of a curative operation for rectal cancer. Surgeons are, therefore, constantly endeavoring to evolve methods and technic which will secure for these sufferers a good prospect of cure with retention of control. The majority of cancers of the rectum which occur more than three inches above the anus, should be studied with a view to removal of the disease without destroying muscular control. Lesions which involve the ampulla and anal canal must necessarily be treated without regard to this question; and for this group of cases efficient methods, either in one or two stages, are at hand.

I shall refer here to the work of Mr. Lockhart Mummery, of London. I visited his clinic some three weeks after seeing Rotter and was present while he operated on a case of cancer of the rectum. It is interesting to observe how men of different countries, often without any knowledge of the work of others, employ similar methods. In operating on these cases, Mummery opens the abdomen, frees the sigmoid, resuturing the peritoneum to it, closes the abdomen, and then removes the growth with the lower sigmoid and rectum above the anal canal from behind. But instead of amputating the growth at once, he leaves it exposed in the wound, as is done in resection of the large intestine for tumor by the Mikulicz-Brun two-stage operation. On the third or fourth day the tumor, with an adequate portion of the sigmoid and rectum, is cut away and the ends sutured together. Ample provision is made for drainage. A fistula is expected to form, and closes itself, as a rule.

Mummery has a justly earned reputation for his operative work on the rectum, and his technic and results are excellent. However, I am impressed with the fact that the methods evolved by Rotter and Mummery are not for the average surgeon who must do this work, since the procedures require a high order of skill and technical knowledge, which comes from the experience only a few may gain. Yet, these operations are a step toward the operation which will eventually be established, and which will combine the good points of these surgeons with a more simple and safe technic.

Prof. Bumm, in the Universität Frauen Klinik, Berlin, has devoted much time and energy to the study of cancer of the uterus. Before visiting the clinic my interest in his work had been stimulated by the excellent review of it by Herman J. Boldt. For some years I have carefully observed the total abdominal hysterectomy for cancer as performed in various countries, and while I can agree with those surgeons who believe this method to be the best, inasmuch as it gives the highest percentage of cures, it undoubtedly is an operation which has a high operative mortality, and in from 4 to 7 per cent of cases accidents have occurred causing injury to the bladder, rectum, and especially to the ureters. We must, therefore, welcome any improvement in technic which retains the obvious advantages of the operation and removes the disadvantages to as great an extent as possible. I believe the Bumm method of procedure to have distinct advantages. Prof. Bumm has found that nitrate of silver is the best antiseptic for the vagina and cervix in these cases. His attention to the destruction of the growth by actual cautery and the preparation of the vagina for operation is thorough. In doing the abdominal operation he stands on the opposite side from the dissection which he is making. After separating both ureters and tying the uterine vessels, the vagina is caught below the cervix with a special clamp forceps; the anterior wall and then the posterior are cut across, the uterus being still attached laterally, which enables the accurate clamping and tying of these lateral structures without loss of blood. His method of protecting the bladder and ureters by stitching the peritoneum of the bladder to the anterior wall of the vagina and closing the vagina completely

without drainage, is a commendable feature of the operation.

For the patient afflicted with cancer of the uterus, who is in a fairly good condition, total abdominal hysterectomy offers the best chance of cure. For the poor risk, and especially the adipose individual, the vaginal method with the clamp and cautery still has a field of usefulness.

Professor Küttner, in the Breslau Clinic, is a worthy successor of Mikulicz. I do not recall having spent more profitable days in a surgical clinic than in his. Küttner is about forty-four years of age, speaks excellent English, and has the teacher's gift of imparting knowledge. Breslau is somewhat out of the way as regards location, and the clinic is not largely attended by visitors, but the opportunities for study and the work generally are so excellent that this city must again become one of the great centers of German surgery.

The University holds great interest for the surgeon since it was here the lamented Mikulicz performed his work. The clinic commands rather unusual material along the lines of bone and joint, head and spine, and gastro-intestinal lesions. I was very much pleased to observe the coöperation between the internist and the surgeon in the management of the border-line cases. In one case,—an operation on the posterior spinal nerve-roots,—Prof. Foerster, the neurologist, gowned and gloved, took part and was intensely interested in the conditions which developed. In the larger number of operations on the brain and spinal cord, the two-stage method is employed. In operations on the skull, Makkas' needle-clamp compression of the scalp is used, temporarily controlling hemorrhage, the skull being opened by a large osteoplastic flap made by an electric saw. The flap is immediately replaced and the wound temporarily closed. The operation on the brain itself followed after several days.

In operating on the spinal cord, Küttner rapidly crushes the spines of the vertebræ and with a pair of heavy scissors trims them away in a single piece. The wound is then closed, to be followed later by an operation on the nerve-roots or cord.

I observed some very interesting specimens which seemed quite at variance with the accepted views on the behavior of bone-grafts. The cases were so nearly alike that a description of one will be sufficient.

Resection of the head, neck, and greater and lesser trochanters was performed on a man with osteosarcoma of the upper end of the femur. The defect was filled from the body of a man eleven hours dead. The patient recovered, was able to walk, and lived about two years. The entire femur sawed sagitally (post mortem) showed complete union. The muscles had reunited and, curiously enough, to their proper anatomic attachments, although not guided by sutures. Some interesting cases were shown in which bones from monkeys had been used as grafts and had not disappeared.

Küttner's work on the stomach is most interesting. He uses Graser's clamps in suturing the ends of the stomach in gastrectomy, and begins his dissection on the greater curvature, tying the gastric artery last and suturing the stomach itself from behind. In gall-bladder work, he uses an incision which begins at the ensiform cartilage, and extends downward half way to the umbilicus. He then cuts two-thirds across the right rectus muscle on a line with, and about one and one-half inches from, the margins of the ribs; the incision then passes vertically downward as far as necessary. The exposure is excellent.

At the University of Leipzig, Prof. Payr occupies the chair of surgery which Trendelenburg so worthily held for many years and from which he retired only a few years ago. Trendelenburg's work was markedly of great worth up to the time of his retirement. The operative removal of emboli from the pulmonary arteries was his final contribution. The "Trendelenburg position" revolutionized pelvic surgery. I had the great pleasure when in Berlin of driving out to Nickolasee, where Prof. Trendelenburg is now living, to call on him and to convey expressions of esteem and affection from the surgeons of America.

Payr is comparatively a young man, and a prodigious worker. His clinic is most instructive. One feature of his many operating-room facilities was an idea that he had brought with him from Königsberg for cooling the room in hot weather. It is a sprinkling device that keeps the skylight and windows covered with water and by its evaporation maintains the room at a very comfortable temperature.

Payr does a great deal of work on the stomach and in cases of gastric ulcer makes a "sleeve" resection; that is, he removes a complete section of the stomach, greater and lesser curvature, with direct suture of the ends, shortening the

stomach to that extent. His results are excellent. This is an operation which has been done extensively in our clinic for large ulcers and hour-glass stomachs with good results; but in small ulcers, where a simple excision could be readily done, we have preferred it, although, as a rule, it did not give the permanent curative results which the resection method had given in the larger ulcers. In some instances following simple excisions we were compelled to do a secondary gastro-enterostomy. Of late we have been making both the simple excision of the ulcer and the gastro-enterostomy at the primary operation unless a "sleeve" resection seemed indicated. I believe this latter method to be increasingly useful.

My purpose in visiting Erlangen was to see the work of Prof. Graser, whom I had the pleasure of meeting when he was in America. I regretted that my time with him was so short. Graser is a surgeon of the first rank and in the prime of life. He has 180 hospital beds and a large amount of surgical material. He has taken a great interest in work on the stomach and has originated a method of resection for cancer which has not been excelled. He uses a special clamp of his own device which permits suturing of the closed stomach through a slot in the clamp. In doing gastrectomy, immediately after tying of the gastric artery and separating the glands of that situation, several sutures are placed, turning in the upper angle of the wall of the stomach to prevent leakage if the stomach should slip from the clamps after cutting. He makes his gastro-enterostomy, not directly opposite the mesentery, but on the inner side of the jejunum, so that two-thirds of the circumference of the small bowel lie free.

Graser's surgical activities and interests are extensive and varied. Like all the German surgeons, he is greatly interested in bone and joint work, and I examined many cases following operations for deformed and ununited fractures. In some of the deformed cases, he loosens the union under an anesthetic and then applies traction for several weeks before replacement and fixation. In one case in which fracture of the femur had existed with great deformity for some months, a nail was driven through the condyle just above the joint, thus securing direct traction on the bone. In skin grafting for circular ulcer of the leg he has shown that it is unnecessary to cover the whole ulcer at once. He has succeeded by placing strips longitudinally, and when these have become areas for growth, more strips are placed. He is using radio-active substances rather extensively and has obtained some satisfactory results in sarcoma. American surgeons traveling abroad should not miss the clinic of this warm-hearted, able, Bavarian surgeon.

Prof. Lexer of Jena has made bone and joint surgery famous in Germany by his transplantation of entire joints. He is a disciple of Bergmann, still adheres to Bergmann's technic, and has the reputation of being a surgeon who can carry out a desperate operation with skill and courage. I was present when he grafted pieces of ox horns in place of bone. These horns are thoroughly cleansed and then slowly sterilized in front of an open fire. One case was that of a girl from whom, three weeks before, he had removed the lower six inches of the femur, including the condyles, and then closed the wound. The wound was reopened at this time, and into the cavity was placed a piece of horn about six inches long, one end of it having a door-knob-enlargement for the condyles, the other having a smaller piece of horn, which connected the graft with the shaft of the girl's femur by driving it into the medulla. The wound was completely closed without drainage. Lexer told me that he had a number of such cases, and that horn was the best material unless one could secure young and growing bone from the human.

Prof. Wilms of Heidelberg is one of the most rapid operators in Germany and he has a large amount of material. Local anesthesia is used extensively, and methods of using novocain for this purpose have been greatly extended in his clinic. I saw him perform two operations under local anesthesia for perineal removal of the enlarged prostate. Each operation was completed in about three minutes. In work on the gall-bladder Wilms operates through a straight incision, and in common-duct stones he washes the débris from the ducts with normal saline solution.

Prof. Lambotte of Antwerp, Belgium, has a great reputation for his work in surgery of the stomach and the bones and joints, on which subjects he has written extensively. For a long time Lambotte advocated a screw-clamp arrangement somewhat like the old Parkhill clamps for the retention of fractured bones. This has been abandoned for a device much like that used by Lane. He operates by the open method for congenital dislocation of the hip on patients up to

the age of twenty-five years and with excellent results. With a large boring instrument he makes a new acetabulum, in which he places the remnant of the femoral head.

After doing gastro-enterostomy, Lambotte blocks the pylorus in a simple manner by taking a piece of twine, passing it around the stomach just above the pylorus, and tying it down sufficiently to occlude the lumen, but not so tight as to disturb circulation. He says, if tied tightly, the thread will pass into the lumen of the stomach, but with a little care it can be caused to remain as a permanent occlusion. He has been able to show, by means of radiograms, occlusion to be present after some years. I was greatly impressed with a case which was called to his attention by his assistants after the diagnosis had, apparently, been carefully worked out. A man about fifty-five years of age had sustained a Pott's fracture of the ankle-joint some months before. His foot, ankle, and leg were considerably swollen, brawny, and painful, and he had come from some distance, hoping to have this condition remedied by operation. Lambotte said promptly that the man was syphilitic, and he pointed out the characteristic appearances both in the limb and the radiograms of the bone, which his assistants had overlooked.

Mr. James Berry, of the Royal Free Hospital, London, has a large amount of material and is a most able surgeon.

This hospital is the Woman's Medical College of London, and a number of female students are in attendance.

Berry is greatly interested in goiter and has the largest material of this description in London. His work is modern in every detail and is characterized by good judgment and keen concern for the patient's welfare.

One is sometimes as much impressed with what a man does not do as with what he does do. After Berry had operated on several patients, one was brought in with extreme obstructive jaundice who had been operated on four or five times. The patient was in wretched physical condition, and after making an incision the adhesions encountered were of such a nature as to almost preclude the possibility of disentangling them. Finally, a little bile escaped from the deeper recesses of the wound. A tube was promptly placed in this spot and the operation stopped at a point where it could be taken up in the future after the jaundice had been relieved, a much better procedure than forcing the operation to a conclusion at this time.

Sir Watson Cheyne, of King's College, is well known in America, not only because of his excellent work in surgery, but also because of his literary work. Cheyne and Berghart have written one of the most popular works on surgical practice which has been published in the English language. Sir Watson is a forceful writer, a ready speaker, and a good operator. He was a pupil of Lister, whose great traditions he so worthily upholds. I was present at his clinic during a number of interesting operations. One case, that of an aged physician with carcinoma of the ascending colon, was most instructive. A resection was made, using a lateral anastomosis to bring the parts together so that the notch in the mesentery was practically closed without sutures.

I had the pleasure of seeing Mr. Thomas Walker, one of the most noted of the English surgeons, in genito-urinary work. Walker is well known to Americans through his contributions to surgical literature. One of the most recent and interesting concerned the method of infection in tuberculosis of the genito-urinary tract. He shows very conclusively that the epididymis, testicles, seminal vesicles, and prostate become infected with tuberculosis along mucous paths, and that it is not hematogenous in origin, as has been widely believed. He operated on one unusual case while I was present. There were three stones in the lower ureter, which made a stone-mass the size of a pullet's egg. The transperitoneal method was employed.

One of the most interesting figures in British surgery today is W. Arbuthnot Lane, of London. In appreciation of the advances that he has made in science, Lane has recently been created a baronet.

Sir Arbuthnot, as he is now called, has been responsible for constant discussion in surgical circles during the last twenty-five years. He was the first, I believe, to tie the internal jugular vein for sinus infection in mastoid disease. In the days when the accepted treatment for cleft-palate was a dental plate, he contended for surgical methods, and now the management of such defects by the dentist is almost unknown. For years the controversy regarding the open treatment of fractures of bones was a bitter one, and Lane, alone, forced the issue which made the open method for a large variety of fractures accepted by the surgeons of the world.

His theories in regard to the rôle the large intestine plays in the production of disease is being bitterly contested; and, while the question is by no means settled, each year an increasing number of men find themselves either agreeing with Lane or thinking there is more in his theories than they had believed possible.

Lane is a master technician, and a kind, considerate man, who from his quiet, modest manner would not suggest the militant spirit which has battled so forcefully for his opinions.

The ileosigmoidostomy of Lane is an operation well known to American surgeons and is one that is now being frequently performed. It has one objection: In a certain percentage of cases, the blind pouch of the large intestine, by reverse peristalsis, becomes filled with refuse material and empties itself with extreme difficulty, or possibly an impaction results. Lane now more frequently removes the large intestine. I witnessed operations on two such cases. One was so-called rheumatoid arthritis, and the other Still's disease.

Colectomy in itself is not free from objectionable features, as it necessitates the removal of the entire omentum, which occasionally results in the formation of extensive adhesions. The removal of ten inches of the ileum and all of the large intestine to the middle of the transverse colon, is a comparatively easy and simple operation and eliminates the greater part of the absorptive surface of the large intestine. From our small experience, I am fain to believe that this procedure fulfills most of the indications and is free from the objections of ileosigmoidostomy and colectomy, although Lane, with his great experience, says that it is not sufficiently radical.

Three months later (August, 1913), while attending the International Medical Congress in London, I again visited Lane's clinic and observed a number of operations. Surgically considered, this work was the feature of the meeting. The operating-room at Guy's Hospital was too small to hold those who desired to see the work. One afternoon Kocher, Bier, Körte, Kümmel, Sauerbruch, Tuffier, Hartmann, Monprofit, Bastianelli, and a host of others were present. About thirty patients were shown who had been operated on months or years previously, and who apparently were cured of their former symptoms, mostly a combination of stasis and neurasthenia. Many of the statements of these patients must be taken with caution, but the history of a little girl of twelve years, fat, rosy, and active, who had doubled her weight in a year after ileosigmoidoscopy and had been completely cured of progressive "rheumatoid arthritis" of several years standing, was most convincing. It was my privilege to go over these cases with Crile, whose experimental work in the field of internal secretions has been most extensive. Crile believes the benefit which many of Lane's patients undoubtedly derive, is due to these agencies and not to the mechanical effects of the operation, *per se*.

Lane says that colectomy is unnecessary in children, short-circuiting being sufficient, and in adults, if the colon is not movable and prolapsed, ileosigmoidoscopy is efficient.

Whatever the real truth may be in regard to Lane's views on the rôle of the large intestine in the etiology of disease, they are certainly most suggestive and valuable contributions to physiological surgery.

I may say, in passing, that Cushing's address on surgery at the International Congress was conceded to be the best of the meeting.

The work of Moynihan of Leeds is familiar to us all, and his frequent visits to America have made him personally known and popular with the American profession. He has recently been knighted in merited recognition of his contributions to scientific surgery and is now known as Sir Berkeley. His contributions to surgical literature have been of the highest order, characterized by originality, a critical knowledge of literature, and clearness of diction. His views are always expressed in beautiful English. I never put down one of Moynihan's writings without a feeling of admiration for him. He maintains the same high position as a speaker; his powers of expression are graphic, and his ideas are arranged in a logical order, which always makes his meaning clear.

Moynihan has a large amount of material at Leeds, and through the recent resignation of his talented colleague, Mr. Littlewood, he becomes, not only one of the great surgical figures of England, but the only one in Yorkshire. He is exceedingly generous to the younger men connected with his service at the University Hospital, advising and stimulating them in their work and giving them much material from his service. His work is characterized by careful technic and great care in details, and each part of an operation is done without haste. He is greatly interested in surgery of the stomach, duodenum,

and gall-bladder, and he has made masterly contributions to the literature on these subjects. In doing gastrectomy, after freeing the tumor and stomach at the pyloric end, he performs gastro-enterostomy before cutting the diseased part of the stomach away, as it is then in condition to handle more easily than the small pouch, which remains if the operation on the stomach is completed before the gastro-enterostomy is done. He first makes an opening through the avascular arcade of the transverse mesocolon. This space is afterwards utilized for the posterior gastro-enterostomy, and the gastric artery is tied from behind after the stomach has been entirely freed. Moynihan does a gastrogastrostomy instead of resection for hour-glass stomach, and he told me that in a considerable number of cases he had not failed to give relief. The method is much safer and easier than the resection which we have heretofore practiced, and it has been adopted, with excellent results, in our clinic since my return home.

Mr. Rutherform Morison, of Newcastle-on-Tyne, is the leading surgeon of Northumberland and one of the best representatives of sound, sane, and safe British surgery, of which he has been one of the leaders for more than twenty years. His contributions to surgical literature have always been of a high order. He is perhaps best known in connection with the Talma-Drummond-Morison operation for ascites from cirrhosis of the liver. Up to 1912 he had operated on 890 internal derangements of the knee-joint from fractured semilunar cartilage without a death. Newcastle is in one of the great mining sections of England, and these injuries are very frequent among the miners. I was present while he operated on two such cases. He showed me some patients on whom amputation of the penis and scrotum for cancer of the penis had been done, and the patients had remained cured for many years. He also showed cases of cancer of the vulva, which had been permanently cured following extensive operation. In our experience this latter condition has seldom been followed by permanent cure after operation.

Morison is one of the men who has taken up the work of Lane, and he has had some excellent results in rheumatoid arthritis and mixed infection of tuberculous joints in children. He showed a boy, of about fourteen years of age, completely cured of tuberculosis of the hip, but, of course, with a stiff joint, a few months after ileosigmoidostomy. Photographs, etc., of the boy's former condition pictured him emaciated and with extensive sinuses in and about the hip.

Mr. Gray Turner is a student of Mr. Morison and an assistant surgeon at the University Hospital. Energetic, enthusiastic, and a keen student of surgery, Turner is a pupil to make Morison's heart glad. Turner has many little devices and improvements for the care and relief of patients following operations, which every house-surgeon ought to know and which the limitations of this article will not permit me to dwell upon. In gastro-enterostomy he puts a suture three-fourths of an inch proximal and also one distal, uniting the jejunum to the stomach in practically the same manner that we do anterior gastro-enterostomy. In doing suprapubic prostatectomy, he has an ingenious method of drawing a pack firmly into the capsule from which the enlarged prostate has been removed, in case of much hemorrhage. One morning after a rather tedious operation, he said: "I am not a lucky surgeon, so am compelled to take great pains." There is a whole lot in this statement.

The American student of surgery who has an opportunity to go abroad will find Newcastle-on-Tyne stimulating to a wonderful degree.

At Edinburgh I greatly enjoyed the clinics of Mr. Harold Stiles and Mr. Alexis Thomson. The work of these two surgeons is so well known to Americans that I can add comparatively little which is not already familiar.

Stiles is chief surgeon in two hospitals: the Chalmers Hospital for adults and the Royal Hospital for Sick Children. His material is enormous. In his work, Stiles combines anatomic precision with great pathologic knowledge and expert handicraft. In removal of the tongue and jaw, he makes a preliminary laryngotomy and packs the pharynx full of gauze. The tube is left in the larynx about three days. The work at the Children's Hospital is unique, especially in tuberculosis of bones, joints, and glands, and also in osteomyelitis.

I regret that the limits of this narrative prevent me from going into details on the many interesting features of the clinic.

Alexis Thomson is professor of surgery at the University of Edinburgh, taking this place on the retirement of John Cheine. Thomson is an excellent teacher and a sound surgeon. The treatise on surgery produced by Thomson and his colleague, Miles, while not extensive, is perhaps the best of its size in the English language. It is especially noteworthy in its balance, and

while the subjects are all necessarily treated briefly it is remarkable that the comparative space allotted to each should be so well proportioned. Thomson's activities cover a large range, and he appears to be equally at home in any department of general surgery. His recent contributions to the subject of fibromatosis of the stomach and the relationships to ulcer and cancer, read before the American Surgical Association, of which society he is an honorary fellow, is one of the most masterly monographs on the subject in print.

While visiting the Royal Infirmary of Edinburgh on one occasion I was pleased to see Mr. David Wallace interrupt the course of his surgical clinic to bring in an "acute abdomen," which had just been admitted to the hospital. The delays in handling these cases, even for a few hours, are responsible for much of the mortality, a fact which Wallace was prompt to recognize and comment upon wisely.

In Liverpool I spent a day with Mr. Robert Jones, who devoted himself to the surgery of bones and joints, and here witnessed, as I have before, the most remarkable clinic of its kind in the world. Jones is surrounded by pupils from various countries, who are drawn to him by the originality of his methods. Not only is he a great diagnostician and operator, but he is also a great teacher. In speaking of tuberculosis of the spine, he said: "This disease is seldom characterized by a pain or tenderness in the back, but always by muscular rigidity and in all directions. If this be absent in one direction, even if present in all others, the condition probably is not tuberculosis." In speaking of fractured semilunar cartilage in the knee, he said: "Pain is felt at the exact seat of fracture, and hyperextension of the knee makes it manifest."

WHO SHOULD DO SURGERY?*

By M. M. Ghent, M. D.
St. Paul

The writer is a general practitioner, and this paper was prepared from that standpoint, so, whether you agree with me or not, I give you what I think upon the subject.

Surgery is an art, medicine an inexact science. The world has had fewer great surgeons than artists. To be a great surgeon one must be a person of rare ability. He must be, not only a student of medicine, but a master mechanic of the human body. A surgeon's character should be as clean and white as his hands.

Surgical work requires not only a clear, cool, calculating head, but also a strong body. Six months ago one of my western colleagues had a rather promising surgical future. While operating he pricked his finger with a needle. The virulent infection spared his life, but not his hand and shoulder. Today his mind is as active as ever, but a scarified, deformed hand refuses to do his bidding.

Medicine is as old as history, but modern surgery is still nestling at the breast of science. Surgery is as luring as "the call of the wild," and, no doubt, the future will take great delight in selecting her greatest men to labor in the surgical vineyard.

Three years ago, Prof. von Eiselsberg, Austria's first surgeon, had visited most of the important American surgical clinics; he returned home to tell his colleagues that, while the Americans have been coming to the German clinics to study medicine for a great many years, the time had now arrived when the German surgeons would have to come to America to study surgery.

In 1808, at Danville, Kentucky, Ephraim McDowell did the first ovariotomy that was ever performed. This was nearly forty years before the two Americans, one a dentist, the other a physician, discovered, almost simultaneously, the two anesthetics most commonly in use, chloroform and ether, which discovery made modern surgery possible.

Probably the greatest thing the American surgeons ever did, which attracted universal attention and the respect of the entire civilized world, was their pioneer work on appendicitis. This was the great awakening that showed the possibilities of abdominal surgery. Ten years ago, appendicitis was known in Europe as an American disease. Today, appendicitis is recognized and operated on almost as frequently on the Continent as in America.

We have had many noted surgeons, but the Mayo Clinic has done as much for surgery as

*Read at the 45th annual meeting of the Minnesota State Medical Association, Minneapolis, October 3 and 4, 1913.

any other one thing that has occurred in America. It is the greatest surgical clinic that exists in the world today or that has ever existed. How it is that two brothers, reared in "an iberian village," with no special surgical preparation, could build such a clinic and be recognized in a few short years as the greatest *pair* of surgeons that have ever lived, has never and may never be satisfactorily explained. Yet it is true and, instead of our hearts being filled with envy and jealousy, they are filled with awe and admiration.

The Mayo Clinic, our excellent state medical laws, our one high-grade medical college—and only one—are the three things that make the practice of medicine and surgery in the state of Minnesota particularly pleasant. Our state is taken all over the country as an almost ideal example.

Surgery is an extra-hazardous vocation. With most of us it is an avocation. At times, luck, that elusive friend and foe, seems to play an important rôle in the final results. Some few years ago I had, what seemed to me, an attack of ill-luck. For some time things had not been running as smoothly as they might have been. One forenoon I operated on two cases that should have recovered, but both went wrong from the start. The second night after the operations, just as I was in that first deep sleep, I was awakened by the telephone. " 'Tis the surgeon's life to have his balmy slumbers wak'd with strife." It was the nurse. She had just finished telling me about how the end came with the one case, when another nurse came to the telephone to say the second patient had passed away. Words can but feebly express my remorse and humiliation. The mental depression following that experience was almost unbearable, and "if I should live a thousand years I never should forget it." However, it would take more than the fickle frown of fate to deter me from what I had determined to do.

It is perfectly apparent to almost everyone that the family doctor no longer has the standing in the community that he once had. Why is this? It is on account of surgery. A good general practitioner told me some time ago that it is now impossible for the average physician to earn a living without some help from the surgery in his practice. When he started practice twenty years ago he had no trouble in holding his work, but he says now after a patient has had any surgical work done, he never sees the home physician again, except for some slight ailment or else in an emergency. This loss will often amount to ten or twelve good families a year in the average man's practice. "The robbed that smiles, steals something from the thief," but the physician who sees his best work leaving him from month to month is in a poor mood to smile.

When Charlotte Bronté found she was losing with Prof. Heger, she wrote: "Monsieur,—The poor have not need of much to sustain them; they ask only for the crumbs that fall from the rich men's table, but, if they are refused these crumbs, they die of hunger." The family doctor is getting only the crumbs that fall from the surgeon's table, and it will not be long before he is refused these crumbs.

Dr. R. C. Coffey, of Portland, Oregon, stated here in June that half the surgery west of the Mississippi river is being done by the general practitioner. This shows the trend of the times, but the movement is just in its infancy. One in medical circles told me personally that he knew positively the thing that prompted the organization of the Surgical Congress of North America, three years ago in Chicago, was to bring the surgical work back to the cities. The loss of work was so great that it was alarming. These surgical congresses will be better attended than ever, but, instead of sending work to the cities, the men will go back home better prepared to do their own work.

The "American College of Surgeons" is a new society of surgeons organized in Washington, D. C., a few months ago to confer surgical degrees on those prepared to do surgery. This society will be of doubtful utility and is destined to fail. The people are the highest tribunal before which our cases have to be tried. They never ask to see our diplomas or credentials. All they require is, that we be prepared to do well the work we undertake to do. What the profession needs is an organization that will enable the average man to learn to do better work.

The surgical work given undergraduates today is far ahead of the work we had twelve to fifteen years ago. When we studied surgery no one intimated that we would ever be called upon to do any of the work we were studying. We were told to make a correct diagnosis, and, if the case was surgical, to rush it to a professor of surgery as fast as possible. Pupils are taught now that they should be able to do simple operating as soon as their internship is finished.

Young surgeons must allow their bashfulness to arise from modesty, not vanity.

An ideal school would be one in connection with a hospital large enough to have every branch of medicine represented. Every case could be thoroughly worked up for demonstration. Post-mortems should be held on all cases that die. Instead of getting four years of college work, followed by one year as resident physician in a hospital, the student would have five years continuous service in the hospital, the service to be divided between the different branches according to their importance. In this way he would learn at first-hand from the case actual practical medicine along with the theoretical training that would last him as long as he lived. Faulty teaching is to blame for school-work that cannot be used in practice.

Can the average physician who has been in practice a few years and who has never done any major surgery, begin now? That depends upon the individual and his ability to apply what can be learned in some good post-graduate school.

The best post-graduate course for one who wants to begin to do surgery is a good course on internal medicine. What a surgeon needs is the ability to take a history, make a careful physical examination, including laboratory tests, and, finally, make a clinical diagnosis. This work can be found only in a course of internal medicine. A difficult clinical case can be studied and examined to advantage for weeks. Then a competent internalist can demonstrate that case in from one to three days, taking an hour each day. Did you ever hear a surgeon spend over five or six minutes on the demonstration of any case? I never did. I heard Neusser talk one hour a day for six weeks on angina pectoris. He showed clinical cases to bring out all the different phases of the disease. Think of a surgeon who would take six weeks to explain all about gall-stones, yet the subject could not be covered in that time.

The best time to take a post-graduate course is a few years after one has been in actual practice. It is not within the domain of this paper to discuss the advantages of the different post-graduate schools, but one should go where the human body can be studied from head to foot under skilled anatomists, pathologists, and clinicians.

What the general practitioner needs is to learn to recognize and treat the ailments that come to him. He can learn this only in courses where all the different branches of medicine are taught. These courses should include not only medicine and surgery, but everything else, such as nervous diseases, skin and venereal diseases, gynecology and obstetrics, eye, ear, nose, and throat work, et cetera. The general opinion prevails that unless one is going to specialize he should not study any of the specialties, such as eye, ear, or skin diseases. I have no respect for such an opinion. The eye or ear is no more sacred to me than the heart or stomach. If I have a case of pityriasis rosea, why should I send it to a dermatologist? It requires no more time or skill to learn to do a radical mastoid than to remove tuberculous glands of the neck. Pus in the antrum of Highmore can be drained out just as easily as pus in the cul-de-sac of Douglas. Then, why not learn to do these things? Personally, I have never studied diseases of the eye. When a case comes to me complaining of symptoms referable to the eye, I can form no opinion as to whether the eye is playing any part in the disease picture or not. I feel so dependent and helpless when I must send every suspected eye case to a specialist to find out if the eyes are negative or not. The next post-graduate work I take, I expect to devote some time to diseases of the eye.

The first post-graduate course should be at least twelve months long. After this, one month a year in visiting clinics, taking short courses on operative technic, buying instruments and apparatus—all this will be ample to keep one well posted on current medicine and surgery. Until one has become quite familiar with operative technic, the operative surgical clinics are of doubtful utility.

The beginning surgeon must attempt only simple things at first. He should study every case carefully; take no unnecessary risks; and the more difficult cases should be operated on under the guidance of an experienced surgeon. If the case is quite beyond him, then let him be satisfied to assist a good surgeon. In this way he gets to remain in the case, and it will add materially to his surgical knowledge.

The very difficult and severe cases should be permitted to drift to the more competent surgical clinicians. I say let them drift, meaning that you would do well not to send your cases to one man or one clinic, but let them go to different places. Avoid the beaten path.

Haggard said here in June "that it is a distinct mistake to encourage four or five men in a town

where there are from six to twelve practitioners to believe that each can do the surgery that may come to him. They do not or cannot have a sufficient number of serious cases to make them all competent, even granting they have the ability and previous training." Instead of objecting to four or five men doing the work where there are from six to twelve practicing, I would say it would be better to unite and all do surgery. Then each one would have the benefit and experience of them all. When a few men join together to do surgical work, it would give an opportunity for one or more of them to be away all the time attending clinics or doing post-graduate work, and in this way all would be benefited. Working together in this way, the general practitioners would become surgeons competent to do most of the surgery of the community, just as every county-seat has its attorneys who are able to try any lawsuit that may arise. The law business is done at home, just where the surgery should be done.

Who is better able to do justice by his client than the attorney who knows him personally, knows the presiding judge, the witnesses, and most of the jury? No one. Who can do better by his patient than the family doctor, who has known him all his life, treated him through different illnesses, knows all about his family history and his family traits? No one.

Surgery is an expensive luxury. We are charging more for surgical work than for other work we do. Who is it that would not rather operate on an ordinary appendix than confine a primipara? The appendectomy takes from fifteen minutes to an hour, operated on in a clean hospital with the assistance of a skilled anesthetist, a house physician and plenty of nurses, usually coming during the day-time and the after-treatment is almost nil. Confining the primipara takes from one to forty-eight hours, and is often done in a home where the aseptic environment is not the best, without the aid of an anesthetist or nurse, usually coming at night or during office hours. For the appendix we are paid four or five times as much as for the confinement. According to the amount of work, the risk, and the skill, the rates should be reversed. The discrepancy is due to the fact that the average practitioner does the confinement work, but the appendix is removed by the highly skilled surgical specialist. No, this is not right. The work can be and will be done by the same person.

Every village of five hundred inhabitants or more, with a well-settled surrounding country, should have a hospital equipped for doing medical and surgical work. We hear a lot of talking against the occasional operator. The general practitioner with a comfortable practice will not be the occasional operator if he does the surgical work in his own practice. He will be operating on from one to four or five cases a week.

The technic of operating is the easiest part of surgery to learn. Anyone can learn to operate if a few fundamental principles are mastered. A good operator may be a poor surgeon and *vice versa.* Fenger was one of the poorest operators I ever saw, yet he was one of the greatest surgeons we have ever had. Most of you heard Dr. Deaver say here in June "that he hoped he was not living in the age when the family doctor was operating." He is living in that age now, and I hope he lives to a ripe old age, and remains able to do surgery till every family doctor in the country is doing more operating than he will be doing at the time. Surgery is strictly humanitarian, a democratic calling. There is no place for an aristocrat. We all know that Dr. Deaver is a great surgeon, but I have the most asinine contempt for any man who makes others feel that he is better than they are.

"Fear not lest Existence closing your
"Account, and mine, should know the like no more;
"The Eternal Saki from that Bowl has pour'd
"Millions of Bubbles like us, and will pour."

When the twelve spies were sent into the land of Canaan, ten returned with a woeful story about the giants occupying the land in whose presence ordinary men appeared as grasshoppers. The other two spies returned and said: "We can subdue their giants and take possession of the land." The wailing of the ten spies and the people caused Jehovah to condemn the people to wander forty years in the wilderness. At the end of this time the two spies, Joshua and Caleb, led the people out of the wilderness into the promised land. The general practitioner has had about twenty years of wandering in this surgical wilderness, and now, I think, it is about time to take the advice of Joshua and Caleb: March over into this promised land and take possession of our rights.

In conclusion:

It is easier to learn to handle a scalpel than people.

I would rather be a good physician than a poor surgeon.

There is little difference between knowing a thing and knowing where it can be learned.

Time was, when we thought surgeons were born. They were, and so were you and I.

DISCUSSION

Dr. E. M. Lundholm (St. Paul): Dr. Ghent started his paper with quotation, "Surgery is an art," and continued by saying that almost every physician must be a surgeon. I cannot agree with Dr. Ghent on that point. In times past medical science included not only medicine and surgery, but also the barber's art. Today surgery is divided into several specialties. It is the same with other sciences, for instance, the manufacturing of shoes. Nowadays our shoes are made in big factories where hundreds of men are working, each man doing his part of the work until the shoe is ready. This is the evolution of the shoe industry, and the treatment of diseases has gone through exactly the same evolution. The splitting up of medical science into several branches, leaving to each man a smaller field and requiring of him greater skill to perform the work in that field to the limit of his ability, we call progress. Again, to force a man to do the same accurate work in a greater field would be impossible, for his brain capacity is not large enough, and such a step would be called retrogression.

What has made possible the great triumphs of medical science today, if not its division into specialties? What kind of operations did the barber perform when he had to divide his time between shaving his customers and operating on patients? Let us be progressive, not retrogressive.

I like Dr. Ghent's idea that he wishes to educate more of the general practitioners to become surgeons, but that every general practitioner should do his own surgery I think is wrong. I hope the time will come when Dr. Deaver, whom Dr. Ghent quoted, will live to see more good surgeons developed from general practitioners and family physicians, but that he will see less major surgery done by the family physician.

Dr. Ghent advises to let severe cases drift over to more competent men. Why should I let them drift? Am I not the servant of the people, not its master? and is it not my duty to give the patients valuable advice as to where to go in case I should regard myself as incompetent to perform the necessary operation? And am I not in a better position to give such advice than, for instance, the neighbor woman of the patient?

My opinion is that the general practitioner of a few years is the best material from which to make a good surgeon.

What ought to be the qualifications of a physician who wishes to become a surgeon?

1. He ought to have good common sense. It is the most necessary thing in surgery, as well as in every other occupation.

2. He ought to have a good medical education.

3. He ought to have served as interne in a hospital where a considerable amount of general surgery is done, and to have assisted the surgeon in those operations.

4. He ought to have his mind turned to surgery. By that I mean, he ought to devote his spare time to studying surgical text-books and literature, and in his mind go through the different operations that would be required for this or that case and make himself acquainted with the possible mishaps and accidents that may occur during the operations.

5. He ought to use every opportunity to operate upon the cadaver. The post-mortem examinations to which he now and then will be called will give him an excellent opportunity to perform almost all abdominal operations on the cadaver, and often he will also get permission to perform the ordinary operations on the head, trunk, and body. A course in surgical operations on the cadaver under a good teacher will be better, but, even if the young surgeon has taken that course, he will feel that he needs to do this and that operation over again on the cadaver, and even the most experienced operator will sometimes have to perform an operation that he has never done before, and access to the cadaver before he performs such an operation would be very welcome to him.

6. He ought to avail himself of every opportunity to see good surgeons operate. A visit to the big surgical centers in Europe will be beneficial, but, unless he cares for the reputation of having "studied in Europe," I believe that the United States presents just as good opportunity to study surgery. If he has prepared himself as previously stated he will derive immense benefit from such clinics.

I believe that the young graduate who has the intention of becoming a surgeon, who spends his first year, after serving his internship, as a general practitioner, now and then performing operations that he feels competent to do, and using his spare time to prepare himself for the more important work that he hopes to be called upon to do in the future, will have all the indications to become a good surgeon.

On the contrary, the man who after graduating thinks that he knows all about surgery, who thinks he is capable of performing all kinds of operations, who starts to consult his books first when he is going to perform an operation, and who, to use Dr. Ghent's words, rushes into the surgical vineyard before he has prepared himself to do the work properly, is unfit to become a surgeon and will do only harm to the reputation of the profession.

Like the author, the painter, and other artists, surgeons also work to become famous, but only a few of them can reach that goal.

Dr. J. Warren Little (Minneapolis): I have been greatly interested in this paper, and I must say it has never been my fortune to listen to a greater jumble of advice and misrepresentation. I think the speaker should have confined his remarks entirely to Joshua because, it seems to me, it is the greatest josh I have ever heard. (Applause.)

There is only one thing I want to say to the Association in refutation of what has been said, and that is with reference to the American College of Surgeons. I am not a member of the American College of Surgeons as yet, but I would be glad to be if the gentlemen in charge see fit to accept me. It is not the intention of the College of Surgeons to keep out good men. It is its intention to try to elevate the standard of surgical work in this country. It is not the intention to exclude anybody if he is competent to do surgery.

The American College of Surgeons is fashioned somewhat after the Royal College of Surgeons in England. Some people have an idea that in England unless a man belongs to the Royal College of Surgeons he cannot do

surgery. This is not true; the letters "F. R. C. S." after his name indicate that he has paid special attention to surgery and that he is prepared to do the work. This is what "F. A. C. S." following a man's name in this country would stand for. It would show his fitness to do surgery, and that his fitness has been passed upon by competent men. It does not prohibit anybody else from doing surgery.

I say this much for fear some of you may be misled as to the aim and intention of the American College of Surgeons.

Dr. F. A. Dunsmoor (Minneapolis): The author of this paper has asked a question which the societies that represent the state and, supposedly, the various counties in the state, should answer, and that is, who should practice surgery? As the doctor stated in his paper, no matter who does surgery, the general practitioner is going to do some emergency surgery. But that does not obviate an answer to the question, who *should* do it? There are restrictions being introduced into the legislature as to who may practice surgery, and a resolution has been introduced into the legislature of another state that if anybody removes the appendix, some other man shall pass pathologically upon it and say whether the operation was performed because it had to be performed.

To go back and answer the question as quickly as possible so as not to occupy too much time, I will say this: I believe there are surgeons born, just as I believe there are musicians born. I have had members in my own family who thought they were musicians, but every one else knew they were not, and yet they had just as much instruction as did the others.

What the doctor said about one or two surgeons was true. The late Christian Fenger was not a great surgeon as an operator, but he was a great pathologist. We do not have to go further than Baltimore to say that in Johns Hopkins there are two great men, one of whom is a great, brilliant, and rapid operator, while the other is a very eminent pathologist, but mighty slow as an operator. It is the beginner in surgery that we are anxious about, because we all sucked bottles of infant food before we were able to chew a beefsteak, and when the surgeons present are dead and gone, there are some who are going to do surgery, yet they should be educated as general practitioners first, and every specialist should first practice general medicine and then develop his best qualifications. I know better than to teach a great many things in pathology, and I know better than to do a cataract operation and then pose as operator on diseases of the rectum.

The day of specialization has come, and a man should be fitted and qualified for any specialty he desires to take up. Before any man practices surgery he should be an adjunct to a surgeon. Every man, before he is really accepted as a surgeon, must not only have all the opportunities offered to every man who practices surgery, but he must have been associated with some good man who does surgery, and does it correctly; and such men can be found in every state and in every city of large size. The universities and post-graduate schools offer opportunities to every man to so qualify. If he wishes to become a surgeon he must separate himself from contaminating possibilities which jeopardize the work, and he must have the opportunities and the facilities to develop his skill under the personal direction of an expert.

Dr. J. W. Andrews (Mankato): I did not hear all of the paper, but that part which I did hear was very satisfactory to me and I was very much pleased with it.

I think there are two classes of physicians and surgeons, one of which belongs to the surgeon specialists in the larger cities, who think that all surgery must be referred to them and that nobody outside of a large city is qualified to do surgery. That is one extreme, and it is wrong. At the other extreme there are physicians and surgeons who have been but a few months or a few years out of college; they have no hospitals and are not prepared to do surgery as it ought to be done. They have taken certain courses in college and have graduated with honors, but they have not acquired the skill necessary to do good surgery. I have often said, and I say it again, that a man ought not to do major surgery unless he does enough of it to keep his hand in. Many years ago I took a special course under the late Dr. Holmes, of Chicago, at the Eye, Ear, Nose, and Throat Infirmary, Chicago, and I learned that lesson from him at that time. He had a small class at the time I was taking the course, and he wanted to know who were going to make the eye and ear a specialty. Some said they would, and some said they did not intend to do so. He said, "Gentlemen, if you do not make the eye and ear a specialty, do not try to perform the major operations, such as cataract, until you have your hand in," and that expresses it very nicely. I believe that no one ought to do an abdominal operation or any major surgery unless he is doing at least on an average several of these operations a month. We find in the smaller places that physicians are rash enough to perform hysterectomy. They have never performed this before, nor have they performed any major operations before. There is another extreme. But I believe we are coming to what is fair and right and what will be justice to the physician and justice to the public at large: namely, that we physicians should have access to a good hospital, and if we do a reasonable amount of surgery let us do it at home and not necessarily send these patients to the great medical centers, for, in this age of the world, a physician must have the necessary preliminary preparation and education before he enters upon practice, but now very many physicians before they get their diplomas are qualified to do ordinary surgery as well as some of the specialists in the great centers.

Dr. Ghent (closing): I am very sorry that my paper was so absolutely unbearable and so obnoxious to Dr. Little. However, I did not expect that this paper would meet with a very warm reception from the surgical specialists. What I wanted to say was that the average man should be better prepared, and he will have an opportunity to do more surgery.

I am very much obliged to Dr. Dunsmoor, Dr. Lundholm, and Dr. Andrews for their friendly discussion.

FECAL IMPACTION COMPLICATING PREGNANCY*

By James Grassick, M. D.

GRAND FORKS, N. D.

Arbuthnot Lane describes the colon as the cess-pool of the intestinal tract. However much you may be inclined to criticize the phraseology, I believe you will agree with me that this trite expression is very near the truth. That it is the reservoir for the waste from the alimentary canal, somewhat analogous to other receptacles, such as the gall-bladder and the urinary bladder, is now generally conceded. At how distant a date it took upon itself this esthetic and useful function, it is not the province of this paper to discuss.

The case that I am about to report illustrates in a striking manner how Nature, if given a fair field and no favor, can adapt herself to the most adverse conditions and make an existence possible, which, at first thought, might be classed among the impossibles. It also illustrates the fact that an obstinate and persistent constipation may be compatible with good health, notwithstanding our theories to the contrary; and that the long line of classical symptoms which we are in the habit of ascribing to auto-intoxication and associating with the condition under consideration, may be entirely lacking in the most aggravated cases. It would also seem to suggest that accepted theories in regard to the physiology of our intestinal apparatus need revision in order that they may be made to conform to well-authenticated clinical observations:

History.—Mrs. P., aged 26, born in Norway, came to America when three years old. Parents, healthy; has two brothers and one sister, all healthy; has had two children, both healthy. She has always, as far back as she remembers, been constipated, but this has given her very little inconvenience. The time elapsing, however, between passages gradually increasing until about seven years ago when she went six months without having a fecal movement. Previous to this time she did nothing therapeutically for her relief other than taking an occasional dose of physic. At this time she consulted Dr. Duncan of Upham, who treated her for four weeks and temporarily relieved the condition. She, however, very soon relapsed and one year afterwards fell under the care of Dr. Eggers of Grand Forks. She was placed in the Deaconess Hospital and relieved of a seven months' accumulation of fecal matter. This required several weeks' treatment. She had normal movements for a short time afterwards, but in the fall of the same year again had trouble and was treated by Dr. Hoffman of Climax, Minn., for a four months' period of continuous constipation. This was repeated in about a year's time for a like condition of four months' standing, and again in the spring of 1912 for a two months' term of non-bowel movement. On January 26, 1913, she was referred to the Deaconess Hospital, Grand Forks, for confinement with a history of obstructed delivery from some cause not clearly recognizable. It was supposed to be a surgical case and Dr. Mulligan of Grand Forks was called in consultation. He was retained, and the case was treated conjointly by us until discharged. When seen at this time the patient gave an immediate history of pregnancy at full term with labor pains quite severe for the past twenty-four hours. She had been attending up to this time to her ordinary duties of housewife, eating three square meals a day, and, as she expressed it, feeling first rate until labor pains started.

An examination showed an abdomen enormously distended, but not tympanitic. The uterus could be outlined in the center and was about of normal development. Along the right and left sides of the abdomen, however, and also transversely over the hypogastrium, a solid nodular mass could be outlined, giving the impression of a fibroid. This so filled up the pelvic cavity that examination of the cervix per vaginam was impossible. The rectum was full and on this fact, taken with the history of no bowel movement since the first part of August, a diagnosis of fecal impaction filling and distending the whole length of the cecum and colon, was made. Delivery was impossible. To delay labor until something could be done, large doses of morphine were given. By manual manipulation, soapsuds, oil, etc., immense quantities of feces were removed. This procedure was kept up for two days, during which time twenty-seven copious discharges were had. An examination at this time showed a fully dilated cervix, and with a little trouble a well-developed healthy child was delivered. The colon could now be easily outlined and palpated and was about the size and

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shape of the circular elbow of an ordinary stove-pipe. After a day's rest the process of removing the mass was continued and kept up for five weeks, averaging from five to fifteen evacuations of varying amounts every twenty-four hours. Several times acute obstruction took place. On three separate occasions these were relieved by digital manipulations per rectum. The cause was found each time to be due to an invagination of the relaxed bowel descending and obstructing the passage. On another occasion, and the last at which this occurred, the obstruction was so high up that it could not be reached by the fingers. It was a complete occlusion, produced by a kink or volvulus of the proximal loop of the sigmoid. The abdomen was distended to such an extent that we feared rupture. Something radical had to be done. The patient was placed on the operating-table and carefully and sparingly anesthetized. The anal sphincter was dilated, and a capable and willing nurse, with a delicate hand, was instructed as to the technic. She had very little difficulty in entering the bowel, her arm being introduced nearly to the elbow. The obstruction was found and rectified. The hard fecal mass was broken up and taken away. The flatus was expelled, and from this time on the patient made an uneventful recovery. She was sent home at the end of the fifth week, as far as could be ascertained, in perfect health. She nursed her baby while in the hospital and it grew and waxed strong, and showed no signs whatever of intoxication from a bad milk supply.

Whether this is a case of congenital megacolon, Hirschprung's disease, or a secondary dilatation of the large intestine from repeated fecal and gaseous distention, I am unable definitely to say; but from the history of the case, together with a consideration of the other data at my disposal, I am inclined to think that it may be the latter.

DISCUSSION

Dr. W. H. Bodenstab (Bismarck): When I read the program, and saw the subject of this paper it called to my mind a case I saw about a year ago in a man 46 years of age. I read over this history, and thought that I could show Dr. Grassick something, but I must admit that I shall have to take my hat off to him. This case was a robust man 46 years old. He had been feeling well all his life, except that when he was ten years old he had an attack similar to his present illness, for which he came for consultation. About a year before he came to Bismarck he began to suffer with constipation. He had to take laxatives and cathartics constantly. His bowels did not move for a week, two weeks, three weeks at a time. During these attacks he had dizziness, discomfort, and headache. He paid little attention to this condition, but when his bowels did not move for four weeks he thought it was time to see a doctor, and he came to us in that condition. Of course the history cleared up the diagnosis in a minute, without examining the patient, although the examination was very interesting. He had a large mass in his right abdomen, extending from the right iliac crest to the hepatic flexure and partially across the upper abdomen. It was a mass probably twenty inches long and six or seven inches in diameter. It was not perfectly round, but rather oblong and oval in shape. The mass was hard, but upon pressing your fingers into the mass you could leave indentations. That made clear the diagnosis as one of impacted fecal matter. I do not think this was a case of Hirschsprung's disease because that is a congenital affair, and children with that disease live only a short time, according to my recollection.

The man was given laxatives and cathartics, such as oil and salts by mouth and rectum for one or two days. He was a busy man between the bathroom and his own room for three days, and when he appeared at the office after that he was apparently as normal as ever.

Dr. Collinson: I happened to have had the pleasure of knowing the case that Dr. Grassick has so graphically described, and before she went to Grand Forks Dr. Duncan and I looked her over, and I wish Dr. Grassick was here to hear me say that he carried out the advice I gave to Dr. Duncan as a consultant. I did not think about a nurse's arm or hand, but, evidently that is what solved the question.

Dr. A. J. Paulson (Flaxton): The paper and discussion have called to my mind a hired man that my father had when I was a boy, who, while working at our place for three months, declared that during that time he had bowel movement only twice. Nobody ever discovered that he was exaggerating or telling untruths about other things, and I have no reason to think he was falsifying in this instance. The man is at the present time about 65 years old. I saw him last, I believe, about ten years ago, and he declared at that time that he has never been any different. He would go from six weeks to two months without a bowel movement, and then he would have four or five, some enormous movements; then none from three to six weeks, or possibly two months, and going on that way all his life, or from early boyhood at least, and at the present time he is apparently as healthy as any man of his age.

Dr. O. C. Maercklein (Dickinson): In the first ear of my practice one of the first patients I had was a woman 42 years old, about five months pregnant, who came to the office complaining of dizziness and headache, telling me that she had been thus troubled more or less for four or five years. She was the mother of twelve children and was again pregnant.

She was a German. I asked her in English when her bowels had moved last. She said about four weeks ago, and I thought she misunderstood me, so I repeated the question in German, and she again said, "Yes, about four weeks ago." I said to her, "How often do your bowels move?" She said about once every four or five weeks. How long has it been that way? And she said about four years. It took two solid months to get them to move every four or five days, but I was satisfied. I looked up the literature and I found that

Dr. Stumm, of St. Paul, had reported a case where a man had gone something like eighteen months without having a bowel movement, but died suddenly soon after.

Dr. J. R. Pence (Minot): The last remark reminds me of a case I had sometime ago, and I rise to get a little information on the point. I had a patient who fell off a three-story building and landed in some telephone wires, bounced up, and came down on the sidewalk with a dislocated hip, smashed face, and broken arm. We got him fixed up pretty well, and for the first day I did not pay much attention to his bowels, and the second day he had no bowel movement. I gave him magnesium sulphate and continued that for three or four days. He was in great pain and I gave him morphine continually for several days. About the eighth day I was at the hospital, and the nurse told me he had had a very copious bowel movement, and about fifteen minutes later the man was dead.

I was wondering if there was any reason for death after such an evacuation. Did he die from the shock or what was it from?

Dr. Bodenstab: It was the suprise.

HYPOPITUITARISM, WITH REPORT OF A CASE*

By T. J. Billion, M. D.

SIOUX FALLS, S. D.

In presenting this subject I do not aim to catch your interest by the description of a rare condition, but, rather, of one of comparative frequency in a more or less typical form. Cushing says he believes pituitary disease to be of as frequent occurrence as thyroid disease. I shall not attempt to give the pathology or describe clinical varieties of hypophyseal disease, but shall attempt to confine the paper to the insufficiency of this gland without neighborhood symptoms or the symptoms of hyperplasia as far as possible. Let me here say the etiology of this syndrome has been proven both by animal experimentation and post-mortem findings, so that investigators speak with authority and with comparative uniformity.

After excision of the hypophysis of a pup, skeletal growth stops, the animal becomes fat, the sexual organs remain infantile, carbohydrate tolerance is increased, the temperature becomes subnormal, and the blood-pressure falls below normal. In the dog we have similar symptoms after the same operation, except that the animal becomes anaphrodisiac and the sexual organs revert.

As a result of disease of the hypophysis we do not get clean-cut symptoms of either a hypopituitarism or a hyperpituitarism, except in a few cases. Many cases of hypopituitarism begin as a hyperpituitarism, the gland first hypertropies and later atrophies, leaving permanent marks of the former condition. Where symptoms of this condition are marked, the skin is thickened, dry, and inelastic; the patient becomes fat; the tolerance for carbohydrates is increased; there is reversion of the sexual organs and the power in the adult and the child remains infantile, which is further shown in the female by amenorrhea and in the adult of both sexes by the small amount of venereal hair; the temperature is subnormal; the blood-pressure, low; superimposed on these we have giantism where hyperplasia of the pituitary occurs before the ossification of the epiphyses of long bones takes place and acromegalia where it occurs afterward. Where the condition is caused by a tumor within the cranial cavity these symptoms complicate the picture. Then, too, disturbances of other internal secreting glands act as an accompaniment at times.

After mentioning these conditions, which may complicate and cause hypopituitarism, we find the functional classification inadequate to fully describe the clinical conditions in pituitary disease. Cushing, in his monograph, "The Pituitary Body and its Diseases," relieves our difficulties by his "Classification of States of Dyspituitarism" under five clinical groups. These are as follows:

Group I. Cases of dyspituitarism in which, not only the signs indicating distortion of the neighboring structures, but also the symptoms betraying the effects of altered glandular activity, are outspoken.

Group II. Cases in which the neighborhood manifestations are pronounced, but the glandular symptoms are absent or inconspicuous.

Group III. Cases in which neighborhood manifestations are absent or inconspicuous, though glandular symptoms are pronounced and unmistakable.

Group IV. Cases in which obvious distant cerebral lesions are accompanied by symptomatic indications of secondary pituitary involvement.

Group V. Cases with a polyglandular syndrome, in which the functional disturbances on the part of the hypophysis are merely one, and

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

not a predominating feature of a general involvement of the ductless glands.

Cases in the first four groups vary, depending on whether symptoms of a hyperpituitarism, a hypopituitarism, or a mixture of the two, predominated.

The case which I am about to present is a hypopituitarism of the third group.

Mrs. C., Sioux Falls, aged 25, married, Hollander, housewife. Family history, negative. Personal history, negative. Subject to recurring attacks of quinsy. Menstruated regularly until 21, when she became irregular; has not menstruated in past two years since coming to the states, and this is also the duration of her married life, and during this time she has had no sexual desire or feeling.

At 18 yrs. In good health. At 23 yrs. Note the marked changes in the malar prognathium.

Dizziness is the only subjective symptom.

She now weighs 170 lbs., is 5 ft. 4 in. high, and has become very fleshy in the last five years. Observe the difference in the patient's features at 18 and 23 years. In the older picture, note the malar prognathism in contradistinction to mandibular in acromegalia. The skin is thickened, dry, and inelastic. Hair is very scanty about the genitals and under the arms. Temperature is 97° F. The blood pressure, 100 m.m.; sugar-tolerance, 300 grms., all the patient's stomach would tolerate. There is also an undoubted reversion sexually. The hand is that of an acromegalic with the tufted phalangeal tips and exostoses. Note also the short, thick, stubby fingers and square hand. To my mind this indicates a hyperpituitarism after 18, which shortly reversed its functional character. The visual field in this patient is normal, and there is no evidence of other neighborhood symptoms.

Under pituitary extract, 3 grs. a day, the dizziness soon disappeared with no other changes to date. I have made no prognosis in this case, for I believe only time will tell.

The pathology is probable first a hyperplasia followed with atrophy. I do not feel one would be justified in inferring more with only these symptoms.

Note the tufted phalanges, the exostoses and the epiphyseal junctions; also the square hand and stubby fingers.

DISCUSSION

Dr. D. S. Kalayjian (Parker): When I found out I was to speak to you on this subject, or to open the discussion on this paper, I thought I would look up the books to see if I could find anything on the subject. What few words I shall say are taken largely from the books.

The anatomy of the pituitary body is pretty well known, and the histology is perhaps a little less known. When we come to the physiology and pathology of it we are far behind and I do not know when we are going to learn. Judging from the indications, there is no doubt that this question is going to be a prolific one. It may not be as prolific as the vermiform appendix is to the surgeon, nor as prolific as the tonsils to the laryngologist. As the pituitary body is in a hard

place to reach, I do not know whether it will help our pocket-books as much as the appendix or the tonsils, or not; but, as we look over the matter a little more carefully, I think it is going to be really interesting and perhaps really profitable to humanity.

The main question to be decided is whether this organ is a secretory body or one of the ductless glands, as the thyroid or adrenals; or whether it is a center of dynamic power of the whole nervous system and regulator of body-growth.

The opinion of the author whose books I have read is that this is not a ductless gland, but is the center of dynamic power of the nervous system, and the nerve fibers or neurones proceeding from the posterior lobe of the pituitary gland supply the thyroid gland, as well as the adrenals, and this anatomical relation of the posterior body has perhaps to do with all the pathological phenomena that we find in the thyroid gland and adrenals. Sajous says that the anterior lobe governs and sustains oxidation and metabolism through the adrenals; however, the posterior lobe is a co-ordination structure. When I was talking with Dr. Billion I found his source of information gave the other opinion; but, if my memory serves me correctly, the author says that the anterior body is the center of oxidation and metabolism, and the posterior lobe governs co-ordination. At any rate, we have much to learn yet about this little organ, but if it should be proven that the function of the organ is to govern the growth and distribution of the body growth through the various channels, and that it is the center of dynamic power of the nervous system, it is going to open a door to medical research and to medical discoveries in which all specialists,—surgeons, and internists, as well as obstetricians,—will find the ultimate explanation of their perplexing problems.

The subject is a very interesting one indeed. In closing, I will say this: I congratulate Dr. Billion, first, on his diagnosing such a rare case, and, second, on his very able way of presenting it to us.

Dr. Van Buren Knott (Sioux City, Iowa): I know very little about this subject. We had a case several years ago of enlargement of the pituitary body in which the diagnosis was not made. The patient went to Chicago, and a diagnosis was made by Dr. Church. The patient was operated on by Dr. Louis McArthur, and died forty-eight hours after the operation.

The patient was a girl, twenty-four years of age, whom I had known from childhood up. She was a friend of my father's family, and a girl I saw practically every day, so that the changes which took place in this particular patient were susceptible of very close scrutiny. She was seen by several men in Sioux City. The case first came under my observation six years ago, and none of us at that time made a diagnosis.

The symptoms in this case, in addition to the slight changes manifested externally in the hands and facial expression, were a most intense headache, loss of co-ordination, and increasing impairment of vision until at the time of the operation the girl was practically blind. I believe, in the majority of these instances, the diagnosis, in addition to the case-history and physical findings, is made by the *x*-ray, and in those cases reported by Cushing, who has had the largest experience of any man in the world, the diagnosis was made by means of the *x*-ray, which showed, in nearly every instance, thickening and deepening of the hypophysis.

I can give you no other information on the subject than that which I have gleaned from observation, and I am in the same position as the rest of you regarding this disease. What little I know I have obtained from the literature of the subject, and I am in no hurry to have a patient consult me for removal of the pituitary body.

Dr. T. J. Billion (closing the discussion): I do not know whether I made plain the function of that gland, as far as we understand it. Let us suppose it is possible to hypertrophy this gland in infancy or in childhood. Before ossification of the hypophysis takes place we have normal giantism. Let a child grow on to 18 or 20, or whatever time the hypophysis ossifies, and we get acromegaly. If we extirpate the gland in a child, we get a condition analogous to cretinism. If we allowed that child to grow up and then extirpated the glands, we would get a pure condition of hyperpituitarism, with myxodema obesity, sexual symptoms, etc.

The condition of the phalanges, according to Cushing, is almost diagnostic of this condition. He also makes *x*-ray pictures of the sella turcica, and in cases of hyperplasia he has found a deepening of the sella turcica. In the case I had I was not experienced in that particular thing, and I knew no one who could make these pictures, but in making a diagnosis of hypopituitarism, in contradistinction to a diagnosis of hyperpituitarism, the *x*-ray has been of little value because the gland is not enlarged to any great extent and has not caused the deepening. So that I do not feel it militated against a correct diagnosis in not being able to get these particular pictures.

PROGRESS IN THE SPECIALTIES

Emil S. Geist, M. D. John Butler, M. D.
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ORTHOPEDIC SURGERY

By Emil S. Geist, M. D.
MINNEAPOLIS

Tuberculosis of Joints.—Rollier, who is chief of a large sanatorium for joint tuberculosis in the rural part of France, recommends the exposure of the naked body of the patient to the sun's rays for a part, or the whole, of a day. The ambulatory cases (chiefly children), as well as those in recumbency, are allowed to play while clad in nothing more than swimming tights. Patients gain in weight, sinuses close, etc.

It has been pointed out recently that possibly a large percentage of the joint tuberculosis in children is due to the bovine type of the tubercle bacillus.

The *x*-ray, therapeutically, is destined to occupy a greater sphere in the treatment of joint tuberculosis than heretofore. Several papers have appeared strongly commending this therapeutic agent in joint tuberculosis.

Bismuth and other pastes for the closure of sinuses are not being used quite so extensively as a few years ago. When they are employed it is in those cases which are afebrile and where the sinuses yield a serous discharge only. Bad results have been reported in the use of bismuth paste, due partially to bismuth poisoning and partially to the fact that the paste dams up the infectious focus, causing a rise of temperature and abscess-formation if the paste is not quickly removed.

Tuberculous Spine.—Bone plastic operations have been employed to fix the spine. A large number of cases have already been operated upon, and the results have been so good that we must consider that we have an important therapeutic aid at our command to relieve the sufferers of Pott's disease.

Hibb's method consists of cutting off the spinous processes of five or six vertebræ, denuding the upper and lower edges, and breaking them down so as to form a bridge over and beyond the diseased area. This is a pretty severe and complicated procedure.

The method of Albee is considerably simpler, and is likely to be more widely employed. Albee splits the spinous processes above and below the diseased area and, into the groove that he has thus created he accurately places a wedge of bone taken from the patient's own tibia. This is really an internal splint. The bone heals into its new location and produces ankylosis in the portion of the spine in which we wish to get fixation.

From the studies of joint tuberculosis by Lorenz, Ely, and others, we know that the most desirable thing in the successful treatment is the attainment of perfect fixation. The Albee operation, unquestionably, does this in the case of the spine.

The only consideration not fully answered by Albee up to date is the question of future growth of the spine. This, of course, comes into question only in the cases of children and adolescents.

In a personal communication Dr. Albee explained what an easy matter it would be after the disease had run its course and become cured, in case there should be growth interference, to go down, cut the transplant between the spinous processes, and insert small pieces of fascia, thus again mobilizing the spine.

In long-continued cases of Pott's paralysis, Bade of Hannover recommends bracing of the patient from the heels to the head, and getting him to stand on his paralyzed legs, getting him in the upright position during the day. In eight cases, he has seen long-standing paralysis disappear with this form of treatment.

Infantile Paralysis.—Enough is known of the etiology and transmissibility of this scourge to impress upon us the necessity of isolation of acute cases and keeping away from the patient flies, insects, etc., as well as attending to the thorough sterilization of the nasal discharges and other excreta.

Regarding treatment during the acute stage, the value of absolute rest is being more and more appreciated. It is best to put the patient on his back and keep him there absolutely, either upon a Bradford Frame or upon the Lorenz Plaster Bed. Motion and friction of the affected members are to be discountenanced. In this way, it is believed that the amount of paralysis can be kept down to a minimum.

Spastic Paralysis.—In spastic paralysis (Little's Disease), several nerve operations have recently been advocated. They consist essentially in removing part of the reflex sensory arc. Foerster, of Breslau, divides a number of the posterior roots of some of the lumbar segments. This is necessarily a severe operation as it implies widespread laminectomy and opening of the dural canal. More recently, Stoffel attempts to do a similar thing by operating on the peripheral nerves. For example: In a case of adductor spasm, he removes a considerable portion of the obturator nerve which supplies the adductor group of muscles of the thigh. The authors' reports on both of these operations are favorable.

Congenital Dislocation of the Hip.—Regarding congenital dislocation of the hip: There is a tendency to return to open operative measures in some cases. Several reports are at hand where children, much above the age limit, have been benefited by arthrotomy and reposition. Ludloff of Breslau advises the more frequent use of the open method, and describes a new operative approach to the hip-joint. He appreciates the fact, which has been brought out chiefly by Sherman of San Francisco, that, in cases of bloodless reposition, the capsule very often interferes. None of these proposed operative procedures are more than pure arthrotomies, and the joint surfaces are not interfered with.

Fractures of the Neck of the Femur.—Whitman and Cotton, perhaps the two foremost American authorities on this condition, favor, in both children and adults, the abduction method. Cotton lays particular stress upon the necessity of producing impaction of the fragments before putting the leg in permanent abducted position. At the last meeting of the American Medical Association, he showed that the *x*-ray pictures of fractures of the femur are misleading, provided they are not taken under the conditions of both push and pull. By taking one picture when the leg was pushed and

another when the leg was pulled upon, he was able to show that there existed motion between the fragments in many cases which had been supposed to be fractures with good impaction.

Bone-Surgery.—In the field of bone-surgery the question of regeneration of bone has been acutely discussed, this discussion having been originated chiefly by the important work of Macewen on this subject.

Bone-transplantation is being employed in a great variety of cases, and the next few years will, no doubt, see a still greater application and variety of uses for this procedure. I have no doubt that bone transplants will take the place of all metal plates and other mechanical devices to hold fractures in position.

The transplantation of entire joints, as first devised by Lexer, is still receiving sporadic attention. Lexer succeeded many times, often in the animal and occasionally in the human, in transplanting an entire healthy joint for one just removed by wide resection.

It is of interest, therefore, to record the case of a violinist with a stiff finger, due to ankylosis of one joint, in whom the affected joint was removed in toto and one of the small joints of the toe put in its place with an absolutely perfect result, the violinist being able to resume his occupation.

Diseases of the Foot.—More attention is being paid to those chronic types of foot trouble which we have been accustomed to class under the general name of "flat-foot." The pathology is being worked out more and more, and we see that in elderly people the circulation is in a great part to blame for some of the foot troubles we encounter, arterioselerosis and varicose veins being the chief circulatory diseases to be blamed. Spasm of the vessels, caused by immoderate use of tobacco, is a frequent cause for chronic foot pain in some cases, and it must be recognized if therapy is to do any good.

Scoliosis.—Two great advances have been made regarding scoliosis. The first consists in the appreciation that a great many more cases than we have been heretofore inclined to believe, are of congenital origin. Systematic *x*-ray examinations of these spines have shown that there exists, at some level or another, a wedged vertebra. This wedged vertebra (sometimes single and sometimes multiple) is to be found chiefly at those portions of the spinal column where the vertebræ change their characteristics, as, for instance, the junction between the cervical and dorsal regions.

The other advance has been in the treatment of scoliosis, and is styled the "Abbott method." This is a new departure and has yielded surprising results in the hands of many, including the writer.

Abbott has shown that it is impossible to correct the chief factor in lateral curvature, that of rotation, when the spine is extended. The small joints behind the bodies of the vertebræ effectually lock when the spine is in the extended position. The more the spine is extended, the more is it locked. However, in the flexed position these small joints are distracted. It then becomes easy to rotate the spine in a great many more directions than it was when the spine was extended. The Abbott method is based upon this fact. The patient is swung in a hammock on a fairly complicated frame so that a maximum degree of flexion of the spine is obtained. Various pulls are then applied in the sense of further unrotating the spine, as well as correcting the deformities. When the maximum over-correction has been attained, plaster of Paris is applied while these pulls are effective. Later, large windows are cut at various places of the cast, so that further corrective pressure can be exercised through them on the patient's body.

PEDIATRICS

By J. P. Sedgwick, M. D.
MINNEAPOLIS

Hemorrhagic Disease of Children, Especially of the New-Born.—The subcutaneous injection of blood or sera and transfusion have given very satisfactory therapeutic results in the hands of many. Welch reported definite results from the subcutaneous injection of human-blood serum in hemorrhage of the new-born. Schloss and Commiskey injected, subcutaneously, whole blood, usually taken from the parents, with excellent results. Usually, 20 or 30 c.c. were withdrawn from a vein of the forearm with an exploratory syringe and immediately injected into the subcutaneous tissue of the infant's back. This method has the advantage of simplicity and rapidity. Six of their seven cases recovered.

The following cases in which I have used this method are encouraging:

Case 1.—Baby C. was 10 months old when first seen, April 22, 1913. Three weeks before examination the babe had a black stool. For three days before the examination the stools had been black. Chemical examination showed blood in the feces. The babe's blood showed 45 per cent. of hemoglobin. Fifteen cubic centimeters of blood were taken from the father's arm and injected at once into the babe's back. The hemorrhage ceased, and there was no return when last seen on July 1st. On May 31st the hemoglobin had risen to 65 per cent.

Case 2.—The babe was 15 months old when seen at the University Hospital's Out-Patient Department. It was premature. There was hemorrhage from the umbilicus. The babe was almost exsanguinated. Local attempts at stopping hemorrhage were of no avail. Fourteen c.c. of the father's blood were injected according to the Schloss method. The hemorrhage ceased for twenty-four hours, and then began again. The father refused to furnish blood again, and the hemorrhage continued from that time until death, two days later.

Horse serum, which can be procured in syringe packages from the agents of the laboratories producing antitoxines, is also of value in these cases.

Case 3.—Baby W. was seen with Dr. Rosen, July 9, 1912. He was then three days old. He had been vomiting bright-red blood for a day, and was very weak. The injection of blood from the mother was advised, but refused by the parents. Ten c.c. of normal horse serum were injected hypodermically, and the hemorrhage ceased at once.

In such cases diphtheria antitoxine may be used, for the sake of the horse serum, disregarding the antitoxine. The human blood, as advised by Schloss and Commiskey, is, however, preferable, both because of the more favorable results and the lack of danger of anaphylaxis.

In the cases where there has been great loss of blood, transfusion, as advised by Beth Vincent and others, has been used to advantage.

Especial interest has been shown recently in the transfusion, as evidenced by the article by Lindeman on "Simple Syringe Transfusion with Special Canulas" and the discussion in the last Section on Diseases of Children by Cooley.

Gonococcus Vaginitis.—This is one of the most distressing conditions with which the pediatrist must contend. Rubin and Leopold have made a recent study of the "Cause of the Persistence of Gonorrheal Vulvovaginitis in Children." The electric-lighted female urethroscope was used. In the majority of these little patients the vaginal portion of the cervix seemed to bear the brunt of the infection. They found a true vaginitis. Pus was seen to escape from the external os. They consider it possible to make a diagnosis with the urethroscope, and suggest the use of this instrument before the admission of infants to hospitals.

For treatment they found irrigations alone to be insufficient. Vaccine treatment was unsatisfactory. Rest was found to be very important. The local application of a specific serum to the vagina gave no better results.

Their summary is as follows:

"From our investigation, the cause of the chronicity of the gonorrheal infection in children as compared to that in adults lies in several factors:

"1. The invasion is more violent and more extensive owing to (a) the close proximity of the portals of entry; (b) the tender mucosa and epidermis.

"2. Once started, the infection practically develops as in a closed tube. This is not due to the valve-like closure made by the hymen, but to the construction of the perineum, and the external and internal genitals. Each segment of the vagina, from the most superficial to the deepest part, serves as a valve to dam back the discharge. This is due to the fact that the vaginal walls are in close contact and do not permit of natural and easy drainage.

"3. Crypts and adhesions in which bacteria lodge form in the vaginal mucosa.

"4. The vaginal portion of the cervix shows the deepest changes, and is at the same time in the most disadvantageous position for drainage and for treatment.

"George Smith presents an interesting study of 'The Complement Fixation-Test in the Management of Gonococcus Vulvovaginitis.' He concludes that a study of twenty-five cases of vulvovaginitis by means of the complement fixation-test shows that the test was positive in eleven out of twelve clinically positive cases, and in four cases in which the evidence was inconclusive. It was negative in three cases in which other evidence of cure was insufficient, but in seven others the clinical findings were corroborative. We are of the opinion that for the purpose of establishing a cure, the test is of considerable value."

In the hospitals with which the reviewer is connected the following precautions are taken:

1. Vaginal smears at entrance and once during the week throughout the children's wards.
2. Individual thermometers and individual bottles of liquid petroleum for a lubricant.
3. The disinfecting of nurses' hands in going from case to case.
4. The children should not be bathed in tubs, but on slabs.
5. Diapers should be carefully sterilized, that is, put through the hot-box.

In my experience the very pessimistic prognosis of some writers is not warranted when proper conditions for treatment can be obtained. Rest, with irrigation and use of the silver salts when conscientiously carried out, will relieve many cases.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY

By William R. Murray, M. D.

MINNEAPOLIS

Optic Atrophy in Infancy.—Folinea describes 8 cases of optic atrophy in infancy in association with cranial malformations. In 4 of the cases there was evidence of congenital syphilis. In 3 cases there was family history of tuberculosis. There was vision at birth with regular formation of cranium. Later there was retarded general development. Cranial deformity and ocular changes appeared between the 2d and 7th year. In all cases there were rachitic alterations of the epiphysis of the long bones, and these changes occurred before the beginning of the cranial formations. The author attributes the optic atrophy to endocranial hypertension induced by rachitic synostosis of the cranial sutures.

Intracapsular Extraction of Cataract.—Much has been written during the past few years in regard to the intracapsular extraction of cataracts, as practiced by Major Henry Smith, of India. There is a difference of opinion among American and European surgeons as to the Smith operation becoming generally practiced. That it gives results, when successfully performed, which are superior in some respects to the older method of operating, cannot be denied. It is also conceded by experienced operators that it is attended by greater danger of complications, unless the operator is experienced in the proper operative technic and is assisted by experienced assistants. Major Smith, after discussing his method of operating, states: "The operators outside India who have not had a special course of training and whose experience is limited to a hundred cataracts a year or less, will be well advised to avoid this operation."

Salvarsan.—Vandigrift reports good results from the use of salvarsan in interstitial keratitis, and he believes that the course of the disease is shorter than with the use of mercury, and that there is less connective tissue deposited in the cornea, and that the ultimate vision is better. Parker reports the use of salvarsan in interstitial keratitis, and finds that it has a beneficial action on the subjective symptoms, but little or no effect on the infiltration. (This is the opinion of a majority of observers.) Bardes calls attention to the danger of impairing the hearing by giving an excess of salvarsan. He tested the hearing of 47 patients before and after the administration of the drug. Hearing was normal before receiving treatment. Six of the 47 cases showed impairment of hearing after the administration of salvarsan. In 4 of the cases the aural disturbance did not appear until after the second injection. The onset was the same in all cases; that is, in from a week to a month after the injection head noises were perceived, and the hearing became progressively impaired. Hearing tests showed diminished aerial and bone-conduction. In 2 cases the deafness failed to improve. The author attributes these results to the excessive use of salvarsan.

Pupil in Cerebral Hemiplegia.—Klippel and Weil,

from a study of a large number of cases of cerebral hemiplegia, found a difference in the size of the pupils in 40 per cent. of the cases. Difference in size of the pupils begins when coma sets in. In comatose hemiplegia the wider pupil is on the side of the cerebral lesion. In hemiplegia without coma the wider pupil is on the opposite side from the cerebral lesion. (There are some exceptions to this rule.) In hemiplegia with coma the pupillary difference is brought about by the contraction of one pupil. In hemiplegia without coma the difference in size of the pupils is brought about by the dilation of one pupil. A pupillary difference in coma indicates organic hemiplegia.

Temporal Bones in Infancy.—Freligh, from a dissection of 150 temporal bones, found that the temporal bone, at birth, is about one-quarter the size of the adult bone; that there were cells in the mastoid process in 30 per cent.; that the jugular fossæ were imperfect in 28 per cent.; that the facial ridge in the middle ear was incomplete in 7 per cent.; and that dehiscences were present in the posterior wall in 2.2 per cent.

Brown found, from a dissection of 160 infant temporal bones, that the nipple-like form of the mastoid makes its appearance at about two and one-half years; outward growth from the tympanic ring occurs between two and three years; the antrum was located 1 to 2 mm. from the cortex and immediately above the superior wall of the auditory canal and above and anterior to the squamomastoid suture. The posterior canal wall was 11 to 12 mm. from the lateral sinus.

Mouret, from an anatomical study of mastoid bones, believes that the sclerotic mastoid is an anatomical, and not a pathological, type. He differentiates the sclerotic type from the sclerotic changes due to chronic suppuration, and proposes to term the latter a compact or eburnated type. He also refers to a case where the pneumatic structure of the mastoid was restored after a radical mastoid operation.

Eye Changes in Aural Affections.—Ferrari shows the developmental and anatomical analogy between the eye and the ear, and that both organs, being intimately related to the nose, may be simultaneously affected by nasal reflexes and infections. He mentions the internal carotid artery as furnishing the arterial supply for both the eye and the ear, and the jugular vein as being their common drain. Also that the cerebrospinal fluid in its normal and pathological condition is intimately connected with the nerve fibres of the eye and the ear; hence aural affections, especially when associated with intracranial complications, may show changes in the fundus oculi.

Mastoiditis.—Verel again calls attention to the absence of temperature in mastoiditis. He found that in 96 out of 125 cases of acute mastoiditis there was no temperature above 100°. Of the remaining 29 cases, in which fever was present, an intracranial complication was found in 22 cases.

Aural Vertigo.—Lake, as a result of his investigations as to the causation of aural vertigo, makes the following clinical classification: Section 1. Peripheral causes—(a) chronic progressive middle ear deafness; (b) hemorrhage and embolism into the labyrinth; (c) traumatism. Section 2. Aural vertigo, due to altered state of blood-pressure—(a) increased blood-pressure; (b) diminished blood-pressure. Section 3. Aural vertigo, due to general systemic causes—(a) Leukemia; (b) occasional; (c) with ocular symptoms; (d) specific; (e) cerebral anemia. Chronic progressive middle-ear deafness and arteriosclerosis were found to be the most frequent causes of vertigo. The author placed small reliance upon the rotary and caloric reactions, and omitted entirely that group in which increased labyrinthine pressure exists.

Infection in Otitic Disease.—Sondern, in a study of the bacterial nature of the infection in otitic diseases, subdivides the subject as follows:

1. Bacteriology of acute middle-ear infection and its complications—(a) types of infection and relative frequency of each; (b) prognostic significance of the respective types.

2. Bacteriology of secondary infection of blood-currents following acute otitic disease—(a) with sinus thrombosis; (b) without sinus thrombosis.

3. Value of blood-cultures in diagnosis—(a) positive cultures; (b) negative cultures.

4. Conclusions: He found the type of infection and relative frequency to be streptococcus, 50 per cent.; staphylococcus, 14 per cent.; pneumococcus, 14 per cent.; streptococcus mucosus, 10 per cent.; mixed infections, 20 per cent.

He found the streptococcus to be the most frequent invader of the mastoid and deeper structures. The most frequent organism found in the blood-stream was the streptococcus, and next in order of frequency were staphylococcus, streptococcus mucosus, and the pneumococcus. The streptococcus mucosus was found to be the most virulent. While in a majority of cases an infection of the general circulation following acute otitic disease means a thrombosis of the sigmoid sinus, a diagnosis of sinus involvement cannot be made on the bacteremia alone. Clinical signs of thrombosis must be present.

Deaf-Mutism.—Macleod[14] discusses the etiology of deafness in young children and shows, from a study of 1,076 cases of congenital deafness, that heredity and consanguinity are the most important factors, with a possibility that alcohol, insanity, and lues are the most important of minor causes. He urges the prohibition of marriage of the deaf-born and of blood relations and of alcoholics, syphilitics, and those having a family taint of insanity, epilepsy, and other neuroses. Of 592 cases of acquired deaf-mutism, he found 74.2 per cent. were due to suppurative or catarrhal middle ear disease and that of this number 21.9 per cent. could have been avoided. Infectious diseases were a causative factor in 26.3 per cent., and diseases of the nervous system in 10.9 per cent.

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SALVARSAN FATALITIES

By John Butler, M. D.
MINNEAPOLIS

In discussing the pathogenesis of salvarsan fatalities, Wechsellmann[1] says, millions of salvarsan injections have been given without incident, and in the recorded fatalities there is no connection between the size of dosage and fatal results. He has given twenty-five times in quick successive doses, 0.6 and 0.7 salvarsan without untoward collateral effects. Of neosalvarsan 1.5 has been administered for many doses at two-day intervals without harm to the patient. On the other hand, most fatalities recorded have followed the second or subsequent doses. Some have attributed the lethal effects to a decomposed preparation, but this is excluded by the fact that a series of patients were injected from the same tube, one dying and the others showing no ill effects. In this series an intravenous injection of 0.1 and 0.2 salvarsan was given in the Wechsellmann clinic with fatal results, to a young girl.

Portner had a like experience, injecting four patients from a common solution, yet one became ill and died. Querat injected eight patients from the same solution and the fourth patient, an apparently healthy man, succumbed. Thus it is a certainty that the drug in itself did not cause death, but the determining cause must lie within the patient himself.

A hazily outlined hypothesis of a hypersensitiveness has been offered by way of explanation, but this has no value as we cannot correctly estimate this hypersensitiveness in a clinical manner and on the post-mortem table, it has a worthless pathological significance. This theory is further weakened by the fact that there could be established no conection between hypersensitiveness and dosage employed.[2]

The theory of cumulative action can be dismissed for as many as fifteen doses 0.6 have been given at two-day intervals without collateral or cumulative effect. On the other hand most deaths are recorded from one or two doses of from 0.3 to 0.8. Toxic influence on the brain is as yet hypothetical, for in many salvarsan fatalities the brain is found to be free from luetic or other changes. Furthermore, no connection can be seen in the age of lues, for statistics show that luetics in all stages of the disease have met with this sad fate.

The neurotoxic theory is untenable from the fact that even in the presence of encephalitis hemorrhagica, the brain substance is not affected. On the contrary, the blood-vessels solely are damaged and that the noxious influences are of a general character, is shown by demonstrable hyperemia and hemorrhage in all of the inner organs.

Wechsellmann is of the opinion that insufficiency of the kidney, and not hypersensitiveness of the brain, is the point of the entire question of salvarsan fatalities. He seems convinced as far as his patients are concerned, after giving more than 25,000 salvarsan injections, that not the salvarsan, but the combined use of mercury and salvarsan, is the cause of the deaths attributed to salvarsan. He argues that mercury in a large percentage of the cases causes irritation of the kidneys, which is manifested by albuminuria and cylindruria. By reason of the disproportionate excretion of the mercury, this may be of a very severe grade in some cases.

Moller and Blomquist's[3] investigations show that the elimination of mercury[3] through the kidneys is rather limited, and marked individual deviations may occur. The mercury may be retained in the renal cells and even in the epethelial cells of the collecting tubules in which degeneration is brought about, thus interfering with its eliminative function.[4] He maintains that a normal kidney is never functionally damaged by salvarsan. On the contrary, disturbance of salvarsan-elimination takes place only with already diseased kidneys, in such instances, the first injection may eliminate perfectly, yet through the burden of an extensive impairment, the elimination of the second injection also of urinary substances may be seriously interfered with.

Ehrlich[5] says the retained salvarsan in the organism decomposes and through oxidation is reduced to an arsenoxide, which is a very toxic substance (organotropic), causing renal damage and anuria. Thus the greatest care must be exercised in estimating the renal function before making intravenous injections of salvarsan.

Of course, insufficiency of the kidney does not explain all salvarsan fatalities. That extrarenal conditions could influence retardation of salvarsan-elimination is evident, for instance, in cardiac disorders, contaminated water used in preparing solutions, etc. (In fever there is salt retention in the blood.)

Generally speaking, the diseased brain tolerates salvarsan well. Wechsellmann concludes by saying the combined use of salvarsan and mercury is dangerous. If one will use the combined treatment, then give mercury carefully, days after the last salvarsan injection, but never reverse the rule.

Finger[6] takes issue with Wechsellmann's above statement, saying that it is[6] unfortunate that salvarsan possesses, in addition to its excellent effect, an unhappy quality which manifests itself at times. One hundred and forty-two salvarsan fatalities have been compiled from the literature in the past three years, which we may contrast with the statistics of Lasserve,[7] gathered from the world's literature, showing seventy fatal cases in the past sixty years from the hypodermic administration of mercury. Finger considers that Wechsellmann's aforesaid explanations of salvarsan fatalities have failed through lack of proof; that Wechsellmann is attempting to make mercury the "scape-goat" for salvarsan; and he does not think mercury and iodine should be forced from their old time-honored position in the therapy of lues. He also deplores the fact that efforts are being made to explain those fatalities on some other basis than salvarsan. There have been many far-fetched attempts at an explanation of toxic manifestation, but without a doubt in his opinion the point to be considered is poisoning by arsenic.

As to the significance of nephritis: He states that salvarsan may cause serious renal lesions, which has been shown by experiments of Stuhmer, Busse, Merian, and Mucha.[7]

That hemorrhagic encephalitis is a feature of salvarsan poisoning is to be accepted from the observations and experiments of Marschalko, Almquist, and Kannengeiser, Richer, and Knapp.[8] Some would consider these fatalities as the effect of the endotoxines of the countless spirochetæ killed by the administration of salvarsan. This assumption lost strength when we learned that latent lues (where there could be no question of flooding the organism with spirochetæ), psori-

asis, lichen planus, leprosy, malaria, and other non-luetic diseases respond in a similar manner to salvarsan injections.

Then came other far-fetched explanations: methyl alcohol, acid solution, physiological salt solution, contaminated water, water with inorganic substances, such as lead content from preparing the solution in glass beakers.

All the above were held responsible for the toxcity of salvarsan.

Marschalko and Stumke demonstrated the worthlessness of the "contaminated-water" theory by using an abundance of "water bacteria" in animal experiments. While Obermuller purposely employed a four to six weeks' old salt solution rich in water bacteria for making up a salvarsan solution, which he used on twelve patients. Only one of those patients showed any special toxic phenomena. Finger says that Wechsellmann has not proved that the nephritis referred to does not occur oftener with salvarsan than with mercury, also that it is not a feature of salvarsan poisoning.

He concludes by saying that the effect of salvarsan in secondary lues scarcely surpasses that of mercury. He believes salvarsan in combination with mercury is excellently adapted to abortive treatment of Wassermann negative primary lesions. In the tertiary stage it is recommended for quick effect, but in Wassermann positive scleroses, as well as in the early period of the secondary stage,[9] salvarsan had better be omitted from the treatment, for this is the time of the greatest spirocheta activity throughout the body, and many spirochetæ at this time remain in the meninges in a vital state. Through the toxic influence of salvarsan the capillaries for which arsenic has a special poisonous affinity become reduced in resisting power; then the spirochetæ are enabled to proliferate and cause later luetic manifestations (neuro-recurrences). Concerning the salvarsan treated tabetics and paretics, he says we can say nothing, for experience on this point, of course, is wanting.

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INTERNAL MEDICINE

By J. G. Cross, M. D.

MINNEAPOLIS

Tuberculosis.—Patterson[1] reports that the average length of time spent by the majority of patients at the Brompton Hospital Sanatorium, Frimley, England, is from three and one-half to four months, after which time they are discharged with the disease arrested and their physical capacity restored to the full. He attributes much of this astonishing result to graduated exercise, beginning with very slight exertion, on the supposition that by this means the patient acquires not only gradually increasing strength and resistance, but also a certain degree of immunity through auto-inoculation.

The results at Frimley have prompted other institutions to try his methods, notably the Minnesota State Sanatorium at Walker. The "exercise" at first allowed is limited to the carrying of miniature buckets of sand or dirt a very short distance. These loads are gradually increased until the patient is able to do a considerable amount of labor.

Artificial pneumothorax[2] has come to have a recognized place in the treatment of advanced pulmonary tuberculosis. A selection of cases for this treatment is a matter for an expert as yet, and it does not, of course, offer very great encouragement. That it has been the means of saving some patients who otherwise would have died, seems probable from the report of those[3] who have observed numerous cases for some time.

In addition to the multiplied adverse reports on the Friedmann serum because of its secrecy and the commercial methods used by those back of it, there comes a communication by Professor Westenhöfer to the *Berliner medizinishe Gesellschaft,* discussing the pathological findings in a subject who had been treated by Friedmann. Westenhöfer and others in the discussion united in saying that not only was experience unfavorable as to any benefits derived, but in some instances results had been unfavorable in cases previously doing well.

Syphilis of the Central Nervous System.—Camp[4] finds that examination of the cerebrospinal fluid after doses of salvarsan up to .6 gm., intravenously, do not result in showing the presence of arsenic in the cerebrospinal fluid. He concludes that therapeutic doses of salvarsan do not influence processes in the central nervous system caused by the specific spirocheta.

H. F. Swift and A. Ellis[5] give their technic for injecting the serum of a patient previously treated by intravenous injections of salvarsan, as follows:

The patient is given an intravenous injection of salvarsan or neosalvarsan. One hour later 40 c.c. of his blood is withdrawn into a sterile centrifuge-tube, which is sedimented and the blood-serum separated from the clot; 12 c.c. of this serum is diluted with 18 c.c. of normal serum and heated to 56° C. (132.8° F.) for a quarter of an hour. The lumbar puncture is made, and spinal fluid is withdrawn until the pressure is reduced to 30 mg. of cerebrospinal fluid. The 40 per cent. serum is injected by gravity through the spinal needle. Results of this treatment give promise of its being an advance in those cases in which salvarsan has not benefited cerebrospinal symptoms.

Chronic Arthritis.—At the Minneapolis meeting of the A. M. A., there were numerous papers[6] that touched upon the possibility of, and even demonstrated, connection between lesions caused by pyogenic organisms in other parts of the body and acute or chronic arthritis. There seems to be no doubt, as evidenced by careful observance, that infection of the tonsils precedes, in very many instances, infection of one or more joints. In the case of acute rheumatism, this has, of course, been a fact frequently observed. In the case of chronic arthritis a suspicion has grown into a positive opinion. We are able, in a great many cases, to relieve chronic arthritis by doing away with the focus of infection in the tonsils,

prostate, the nasal sinuses, or, more rarely, in other parts of the body. The same rule that applies in the case of arthritis, is also true in many cases of carditis. In the writer's experience there has been a direct and undoubted connection between cases of subacute and acute tonsillitis and cardiac disease.

Experimental Eosinophilia.—Ahl and Schittenhelm[7] produced eosinophilia with repeated injections of protein substances in animals, but not with the first injection. Herrick[8] concludes from similar experiments he performed, in which he produced eosinophilia in animals, that eosinophilia is closely connected with anaphylaxis, and indicates previous sensitization. It seems probable that the function of eosinophiles is protective and that they are resistant to certain specific toxins. This may lead to practical results in the prevention and treatment of certain conditions in which eosinophilia occurs in man as in asthma, etc.

Recurrent Fever.—By recent work of Nicolle, Blaizot, and Conseil[9] another disease has been added to the list of those borne by parasities. They found the spirillum of recurrent fever in body-lice, but concluded that it cannot escape from the parasite to the human being during the life of the louse. They believe it is set free when the body of the parasite is crushed, and that the spirilla are carried on the nails to excoriations and conjunctivæ, thus entering the blood and causing recurrent fever in the human being.

Acidosis.—Hart[10] discusses the value of knowing the amount of acetone bodies excreted in the urine in such conditions as cyclic vomiting, starvation, post-anesthetic toxemia, and diabetes. Especially in the latter disease do the acetone bodies represent a very considerable loss in calories to the individual. One gm. of B. oxybutyric acid rather more than equals 1 gm. of glucose. Further, the amount has a direct toxic effect on tissues, the symptoms of which are recognized by the general terms, "acid-intoxication." The accumulations of these products is believed by many to be the cause of coma in diabetes. Hart proposes a method by which the acetone bodies in the urine can be quantitatively measured by means of a color-test solution and Gerhardt's ferric chloride test.

Typhoid Fever.—Russell[11] presented at Minneapolis the statistics of the U. S. army showing the results of vaccination against typhoid fever, together with a description of the technic. The showing made is convincing and numerous reports from other sources demonstrate the efficacy of the method. Vaccination is bound to become a permanent prophylactic means in this disease.

Many suggestions continue to be made as to treating typhoid carriers, but this problem is still an unsolved one.

Pneumonia.—Cole[12] and Rosenow[13] have been working with antitoxic sera and culture extracts in the treatment of pneumonia, as well as through animal experiments. It is shown that pneumonia is caused by different groups of pneumococci, and therefore that it is necessary to determine the group to which the causal organism belongs before administering a serum. The serum, which is active against one of the groups, is not effective against members of another group.

Rosenow's work covering several years of most painstaking and carefully controlled experimenting with pneumonia and pneumococcemia, is adding much to our knowledge of these diseases and leads to the hope of a more effective therapeusis.

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THE THREE SEXES

George Cram Cook, in the October number of *The Forum*, has a very interesting article on the "Third American Sex," and the opening paragraphs herein quoted give one an idea of the important features in this review.

"In America there are three sexes: Men, women, and professors. It is the saying of European scholars looking from those self-governing democracies, their universities, upon ours. They see ours ruled without the consent of the governed through presidential autocrats, by boards of non-scholar trustees, not a part of the world of learning, but superimposed upon it. The American professor has the status of an employee subject to dismissal without trial by men not his colleagues.

"The universities of Germany and the older universities of England and Scotland respect and trust and leave free the individual. Their organization gives them the right to regard themselves as provinces of the republic of letters. The overlorded universities of America have no such right."

He goes on to say, however, that after two centuries the members of the American profession have submitted to a system which gives them little control over their own lives, small power to defend any truth which has powerful enemies, or any part in shaping the policies of the institution in which they teach. He calls attention also to the fact that the scholars and teachers in our American universities are under the thumb of business men or capitalists who have no real knowledge of educational or university needs. The result is an over-timidity on the part of teachers and a subservience which they are obliged to observe in order to retain their positions on the teaching faculty. Cook also claims that this relationship between teachers and students is objectionable, in that it does not bring the two intimately and more closely together, that the whole thing is superficial and tyrannical.

One other evil which is evident and has been demonstrated time and again is, that the teacher is employed for an indeterminate period, that he never knows when he may be dropped without warning, and he thus loses his incentive to better and more sincere study. In other words, he is trying to keep his job, and he finds that in order to do so he must placate the dictators of the policy of the university. If he is employed in some special department of the university he soon learns "His Master's Voice," and not infrequently he has to teach down rather than teach up to a higher level. If he is dropped without trial by his associates, or the colleagues in his department, he is given the impression that he is incompetent, that he lost the quality which makes him a valuable man. As a matter of fact his ability may be unimpaired, but, through caprice, favoritism, or personal prejudice of his superiors in the department or those who are in control of the situation (the small inner circle), he finds he is helpless and unable often to qualify for another teaching opportunity. This in itself is manifestly unjust and unfair, and is not in line of advancement to a position which the administration of a university must eventually reach, in order to be controlled by the faculty members themselves. Unfortunately, there is in many universities a stormy, selfish, and political element who seek personal aggrandizement or who seek to force purely personal ideas of management upon the unsuspecting student. An institution manned and run with this idea in mind has no real thought or sympathy for the student body, and the inevitable occurs. The student gets no nearer the real seat of knowledge than he was at the time of his admission except in those instances where the individual rises above his environment. Students are treated like irresponsible children, and they respond to it in like manner.

The steam-roller idea may have its advantages

in political organization, but it has no place in an institution of learning. "The average student becomes more or less indifferent, due to the university policy of training, selecting, and suppressing teachers into saying what nobody will think of again outside of the lecture-room. Teachers hesitate to advise freedom, daring, energy, and joy, which is essential to creativeness."

On the Continent the relation between teacher and student is very simple and quite in contrast with the American method. The real teacher and the real student come together; they know one another intimately inside and outside of the lecture-room. The result is to stimulate thinking and understanding. Not infrequently new ideas, or newly wrapped ideas, are born in these conferences. In many of our universities the individualistic, non-coöperative, and specialist departments are bound too tightly administratively and not related organically; even then the teachers may not be aware of the situation. It is a fact that the power behind the throne, the so-called board of trustees or board of regents, is composed mainly of men who have no conception of the work allotted them. Usually the appointments are of a political nature; capitalists and idle people otherwise who have few of the fundamentals necessary to education, compose the board, and they take great satisfaction in dismissing or dropping their employees without ceremony. A man may work in the department for a number of years, giving his best efforts, gradually attaining a degree of efficiency from experience, study, and research, knowing that at any time his head may fall in the trustees' basket. Such a thing would be impossible in the army. For instance, an officer or teacher would be court-martialed, at least given an opportunity to express himself. He would have the benefit of being judged by his peers, but the university teacher has no such satisfaction. He goes into the work hoping for advancement, promotion, and recognition after years of service only to find that some one, the favorite of some one else, occupies his place, without due trial or due notice. A man who attempts to express a definite opinion in many of the departments of the American university exposes himself to censure or dismissal, particularly if the board of trustees feel that he is departing from the regulation doctrine.

Cook gives a number of instances of this kind where men who were prominent in their departments were unceremoniously removed because they could not entertain an old-fashioned idea and because they dared to express an honest conviction. It seems that there is an organization composed of college presidents who have formed themselves into a union which holds its sessions in secret and knows that it has almost unlimited power. Why should not the faculty of an institution combine in a similar union, organized for the good of the teaching force, and particularly for the good of the student body, selecting their own associates and deciding their own courses of study? It would not take very long, if such an organization were permitted, to change the policy of the American university. It would be then a self-governing democracy. Most universities are rich enough at the present time and can afford to be frank, open, and daring in the expression of their views, and thus educate the people up to a better standard. It would stimulate the student to the best efforts imaginable, but as long as the benevolent despotism continues, the intellectual life of the university and its students will be sterilized.

The third factor in the sex problem outlined in Cook's criticism, i. e., the professional class, should be eliminated. Men and women must maintain the integrity of the individual man and woman who should dominate the policy of the university. If a faculty combined against objectionable conditions, which exist in most universities, and formed themselves into an organization to demand a better policy and broader and freer opportunities, it would not take boards of regents or boards of trustees long to awake to the real needs of the student body. It is about time the educational methods were being revolutionized. There is too much impotency now. Only with the abolition of boards who are unable to study the situation, and particularly when they accept blindly the suggestions of the dominant few, will our universities become material educational factors in this country.

SALVARSAN OR MERCURY

The administration of salvarsan or neosalvarsan in the treatment of syphilis has in many instances apparently cured the disease, provided, however, suitable cases have been selected. In the majority of instances a feeling of overconfidence is developed, and not sufficient thought is given to after-results.

It has been said, and justly so, that this overconfident expectation may lead to disaster. This refers particularly to the late syphilitic factors. Unless close and timely attention is given to the after-care of the syphilitic, the physician may

see increasing numbers of cases of tabes, paresis and other somatic tertiary lesions. To be on the safe side no physician can assume that his patient is cured unless mercury in some form is used conjointly with the salvarsan. More reliance must be placed on the use of mercury than on salvarsan with our present knowledge of both drugs.

Salvarsan may be used in various ways, intravenously, intramuscularly, and by the drop method through the bowels, but the follow-up treatment of mercury must not be neglected. Then, too, the mercury should be given in larger doses than usually is employed and preferably by the hypodermic method.

Succinimide of mercury in ⅕ grain doses, or salicylate of mercury in from 1 grain to 1½ grain doses, may be given daily or tri-weekly according to the effect produced. At the same time calomel as a dusting powder for accessible lesions should not be omitted. To avoid the possibility, therefore, of secondary or tertiary symptoms, mercury should be given for an indeterminate period. Whenever ptyalism is produced, the mercury may be suspended for a few days, only to be resumed in milder doses or in different forms. Neurologists frequently see cases that might not have occurred if the initial treatment had been more vigorous and protracted. The Wassermann test of the blood and spinal fluid should be made in all doubtful cases at varying intervals, in order to determine the efficacy of salvarsan and mercury. Cases have been reported in which a postitive Wassermann has been found thirty-eight years after the initial lesion. Hence the necessity of prolonged and repeated series of examinations and treatment.

It is not often necessary to keep a syphilitic, under treatment for several years at a time, but it is essential to repeat the treatment for a few weeks in each year, in order to prevent the spirochæta pallida from an insidious recurrence.

PROGRESS IN THE SPECIALTIES

Under the above heading we shall present, from time to time and from different men in each of the specialties, an account of the progress made in the entire field of medicine and surgery. It is not intended that the writers shall deal with the fads that hold sway for a short time in practically all of the specialties, but the real progress in all departments of medicine will be noted.

This work is not to be necessarily an annual review, but an occasional presentation of progress.

CORRESPONDENCE

AN INTEREST-BEARING PATIENT

To the Editor:

The following history may have at least one point of interest for the readers of The Journal-Lancet.

Harold K., aged 6, in bed with a fractured fibula, on Oct. 23, 10 a. m., was reported to have swallowed two silver quarters. Without any symptoms whatsoever he passed on October 26, 6 p. m., three quarters and a nickel. He had made no mention of the extra quarter, being afraid of paternal wrath, nor of the nickel, as it belonged to his brother.

It is of interest to note that having swallowed the four coins at one time they should be passed at one bowel movement.

W. G. Workman, M. D.

Tracy, Minn., Nov. 5, 1913.

NEWS ITEMS

Dr. J. B. Shaw will locate at Fallon, Mont.

Dr. C. J. Lannin, of Mabel, has moved to Hamilton, Ontario.

Dr. A. A. Tyrrell, of St. Paul, will locate at Pillager, Minn.

Dr. W. A. McEachren, of Sandstone, has moved to Superior, Wis.

Dr. L. R. Critchfield has moved from Galesburg, N. D., to Sutton, N. D.

Dr. C. E. Spicer, of Litchville, N. D., is in the East doing post-graduate work.

Dr. Harry G. Harris, of New York City, has decided to locate at Poplar, Mont.

Dr. Geo. Monteith of Hazelton, N. D., was married Oct. 22d to Miss Lucile Hubbard.

Dr. J. E. Ruhl has located permanently at Winner, S. D., for the practice of medicine and surgery.

Dr. Arthur E. Smith, of Minneapolis, has returned from fifteen months' work in the eye and nose clinics of Berlin.

Drs. S. A. and M. E. Donahoe have opened offices at Sioux Falls, S. D., and will practice medicine and surgery.

Dr. H. G. Lampson, formerly of Minneapolis, is now the whole-time health officer of Rochester, and may continue the work for some months.

Dr. Henry E. Michelson of the McIntyre Hospital staff at Virginia, was appointed assistant health officer and school physician for that city.

Dr. Charles Feller, of St. Paul, died at St. Joseph's hospital Oct. 30th. He was 58 years old and had practiced in that city for thirty-five years.

Dr. P. D. Peabody, of Webster, S. D., opened his new hospital Oct. 19th. It is a three-story brick structure and has all modern improvements.

Dr. R. J. Morrisey, of Watertown, S. D., has purchased the practice of Dr. B. E. Ryder, of Oakes, N. D. Dr. Ryder has moved to Los Angeles, Calif.

The village council of Hibbing decided not to erect an addition to the detention hospital for a general hospital, but to secure a site and erect a separate building.

Dr. and Mrs. E. B. Taylor, of Huron, S. D., have gone to Europe, where the doctor will take special post-graduate work at Vienna. He will return next spring.

Dr. E. W. Hayes was married at Winona on Oct. 15th and has gone to Cusson to reside, where he succeeds Dr. Laney as representative of the McIntyre Hospital.

Dr. Larrabee of Braddock, N. D., has sold his practice to Dr. Barr and Dr. Lodge of Steele. He will leave shortly for the east where he will take a post-graduate course.

Dr. Ferdinand N. Hunt, of Blue Earth, after practicing for twenty-eight years in Martin and Faribault counties, left last month for Los Angeles, where he will engage in practice.

Dr. George H. Caldwell, formerly Assistant Professor of Physiology, in the University of North Dakota, is now a member of the firm of Drs. Pike, Weaver, and Caldwell, of Twin Falls, N. D.

The mid-winter meeting of the Southern Minnesota Association, to be held in Mankato Dec. 2d and 3d, should not be forgotten by members or guests, the program being a most excellent one.

Dr. C. E. Wilson and Dr. R. C. Hunt have taken over the management of the Blue Earth Hospital. This hospital was established seven years ago by Dr. F. N. Hunt, who disposed of his practice to Dr. Wilson.

Dr. Gust E. Abrahamson, of Brainerd, was married to Miss Delia Cecil Regan, of the same place, last month. Dr. Abrahamson is a graduate of the University of Minnesota, and will practice his profession at Brainerd.

The annual meeting of the Soo Surgical Association will be held in Milwaukee on Dec. 4th and 5th. Dr. J. B. Murphy will deliver the oration in surgery. Gov. McGovern will give an address on the "Workman's Compensation Act."

The wives of St. Paul physicians held a meeting this month to organize an auxiliary of the Ramsey County Medical Society. Mrs. Walter R. Ramsey was elected temporary secretary, and at the next meeting permanent officers will be elected.

Dr. and Mrs. C. S. Bobb, of Mitchell, S. D., have gone to Chicago where the doctor will do some post-graduate medical work. Dr. B. A. Bobb will join him Nov. 10, and both will be present at the Clinical Congress of Surgeons of North America.

The board of directors of St. John's Hospital at Red Wing are considering the erection of an addition to cost between $25,000 and $40,000. The tenth anniversary of the founding of the hospital was celebrated last month by a banquet. John A. Schacht, president, was toastmaster.

Dr. L. W. Baskett, for several years past assistant physician at the State Hospital at St. Peter, resigned and will engage in private practice at Tyler. He has purchased the office furniture and fixtures of Dr. A. J. Cox. Dr. Baskett is a graduate of Michigan University, Class of '09.

A movement has been started at Minot, N. D., to raise $50,000 for the erection of a new St. Joseph's hospital. Judge L. J. Palda was chosen general chairman. Chas. Jerome Sheffield, one of the biggest hospital campaign experts in the country, will be director-general of the campaign.

Dr. O. A. Oredson, of Duluth, has gone to Vienna, where he will spend the winter, and take a post-graduate course in surgery. In the spring Mrs. Oredson will join him, and they will tour Europe. Dr. Oliver S. Olson of Chicago, will take charge of the doctor's practice during his absence.

Dr. A. V. Garlock, of Hartland, has sold his practice to Dr. F. H. Schaaf, and will locate in Little Falls and practice as a specialist, having just completed a course on the eye, ear, nose and throat at Chicago. Dr. Schaaf is a graduate of the St. Louis University and of the University of Giessen, Germany.

Dr. H. J. Rowe, secretary of the North Dakota Association, desires to inform the members of the North Dakota profession that he will, so far as he is able, obtain short-time supplies (*locum tenens*) for $10 a day and traveling expenses for such supplies. Dr. Rowe's services in obtaining such help is gratuitous.

At the annual meeting of the St. Louis County Society the following were elected to office for the current year: President, Dr. F. J. Patton, Duluth; first vice-president, Dr. S. S. Blacklock, Hibbing; second vice-president, Dr. N. H. Gil-

lespie, Duluth; secretary-treasurer, Dr. Rood Taylor, Duluth; delegates, Drs. J. A. Winter and O. W. Rowe, Duluth.

The Stearns-Benton County Society had a pleasant and valuable meeting at Kimball on Oct. 30th. Dr. Geo. D. Head, of Minneapolis, read a paper on "Intra-abdominal Conditions Simulating Appendicitis," which elicited a full and lively discussion. Dr. and Mrs. Sherwood, of Kimball, gave the Society a sumptuous duck dinner and a royal entertainment. The next meeting will be held at St. Cloud.

PHYSICIANS LICENSED AT THE OCTOBER, 1913, EXAMINATION TO PRACTICE IN MINNESOTA

UPON EXAMINATION

Ausman, Carl F. . . . . Northwestern, 1912
Babcock, Fager M. . . . . U. of M., 1913
Blong, Peter H. . . . . Temple U., Pa., 1910
Howe, Archibald W. . . . . U. of M., 1913
King, William S. . . . . Northwestern, 1911
Kvello, Olaf A. . . . . Rush, 1913
Lawler, Frank J. . . . . U. of M., 1912
Long, William H. . . . . U. of M., 1912
Schaaf, Fritz H. K. . . . . St. Louis U., 1912
Turnbull, Frederick M. . . . . McGill, 1909

BY RECIPROCITY

Best, Floyd E. . . . . Northwestern, 1911
Clark, Leslie W. . . . . State U. of Iowa, 1909
Eaton, William H. . . . . U. of Iowa, 1902
Haberman, Emil . . . . . P. & S. Ill., 1904
Hertel, Garfield E. . . . Washington U., Mo., 1908
Laraway, Charles R. . . . . Northwestern, 1912
Laughlin, John Thos. . . . . Marquette, 1908
Lindgren, Elis I. . . . . .
. . . . . U. of Helsingfors, Finland, 1903
Miller, Frederick C. . . . . .
. . . . . Col. of P. & S., Ill. Univ., 1912
Mogilner, Samuel N. . . . . .
. . . . . Chicago Col. of Med. & Surg., 1913
Montgomery, John L. . . . . Bennett, 1911
Nicholson, Murdock A., U. of Pennsylvania, 1911
O'Donnell, Dennis M. . . . . P. & S., Chicago, 1910
Olson, Oliver S. . . . . U. of Illinois, 1912
Rose, John T. . . State U. of Iowa (Homeo), 1909
Satterlund, Victor L. . . . . Marquette, 1912
Seeger, Stanley J. . . . . Northwestern, 1911
Taft, Walter L. . . . . Marquette, 1913
Vercellini, Charles E. . . . . .
. . . . . Royal University, Turin, Italy, 1901
Walker, Claude Wm. . . U. of Pennsylvania, 1901
Yoder, Roydon B. . . Hahnemann, Chicago, 1908

PARTNERSHIP PRACTICE FOR SALE

Established eight years in a town of 5,000 in Southern Minnesota. Collections of firm above expenses about $6,000, which may be increased by doing some surgery. Entire practice, including residence valued at $3,500 and $1,400 of office fixtures, horses, etc., for sale for $5,000. Two men are needed to handle the business, in which there is no competition. Address 78, care of this office. Terms to suit.

PRACTICE FOR SALE

I have a twelve years established practice in one of the best cities of eastern South Dakota which I will release to the physician purchasing my eight-room modern residence. Choice location. Only reasonable price for residence. You cannot lose. Address 79, care of this office.

INTERNE ASSISTANT WANTED

An interne assistant at the Nopeming Sanatorium, near Duluth, salary $25 a month with board. The fact that the applicant has tuberculosis not necessarily a disqualification. Apply to Secretary, St. Louis County Sanatorium Commission, West Duluth, Minn.

FINE MINNEAPOLIS OPENING FOR PHYSICIAN

Physician's twelve-room residence with offices for rent in the business center; six rooms now rented. Complete with household and office furniture. Electric wall-plate, static machine, microscope, vibrators, and other instruments for sale. Also electric automobile. Garage with charging-outfit for rent, or charging outfit for sale. Write or call 825 First Ave. So., Minneapolis.

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A well equipped hospital of 16-bed capacity in a town of 4,000. Excellent location for an enterprising M. D. or surgeon. Terms reasonable. Address M. S., care of this office.

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A young man for assistant. Must be Scandinavian and able to do refractive work. State monthly salary wanted. Address, for particulars, D. B., care this office.

PRACTICE FOR SALE

I have an established practice of $4,500 in one of Wisconsin's best towns of 1,000 population. Splendid schools, churches, electric lights, sewer and city water. Practice can easily be increased by doing surgery. Am leaving state. Price, $800 for practice and office fixtures. Norwegian preferred. Address B. G., care of this office.

Doctor: If you want practical post-graduate work during fine season in the delightful city, write for particulars. New Orleans Polyclinic, P. O. Box 797, Postgraduate Medical Dept., Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF AUGUST, 1913

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	3															1
Alexandria	2,681	3,001	9	1												2		
Anoka	3,769	3,972	4											1				1
Austin	5,474	6,960	7															2
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	7			1									3			
Benson	1,525	1,677	1															1
Blue Earth	2,900	2,319	3													1		
Brainerd	7,524	8,526	8															
Breckenridge	1,282	1,840	5			1										1		1
Canby	1,100	1,528	2	1														
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	5	2														
Crookston	5,359	7,559	4		1											1		
Dawson	962	1,318	1															
Detroit	2,060	2,807	0															
Duluth	52,968	78,466	82	4	6	3			1						10	7		11
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	5												1	1		1
Eveleth	2,752	7,036	11			1					1				2	1		2
Fairmont	3,440	2,958	2															
Faribault	7,868	9,001	6											1		1		1
Fergus Falls	6,072	6,887	8	1	1		1	1										1
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	2													1		1
Hutchinson	2,495	2,368	2	1														
International Falls		1,487	3															2
Jordan	1,270	1,151	1													1		
Lake City	3,142	3,142	4												2			1
Le Sueur	1,937	1,755	3													1		
Little Falls	5,774	6,078	1															1
Luverne	2,223	2,540	7													2		
Madison	1,336	1,811	5			1												
Mankato	10,559	10,365	19	1	2												1	1
Marshall	2,088	2,152	4															1
Melrose	2,591	2,591	3	1	1						1							
Minneapolis	202,718	301,408	281	35	4	11		1			2			1	23	22	2	14
Montevideo	2,146	3,056	2	1														
Montgomery	979	1,267	0															
Moorhead	3,730	4,840	6											1	1			1
Morris	1,934	1,685	4		1										1			
New Prague	1,228	1,554	1												1			
New Ulm	5,403	5,648	7															1
Northfield	3,210	3,215	5												1	1		1
Ortonville	1,247	1,774	2											1				
Owatonna	5,561	5,658	5															
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	2													1		
Red Wing	7,525	9,048	4													1		
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	26	2												7		
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	15	1		1					1					3		
St. James	2,102	2,102	1											1				
St. Paul	163,632	214,744	204	16	5	5	2				3				24	22		15
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	3	1														1
South St. Paul	2,322	4,510	7												2	1		2
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	13	2										1	1			1
Thief River Falls	1,819	3,174	6								1					1		
Tower	1,111	1,111	2												1			
Tracy	1,911	1,826	4	1								1						1
Two Harbors	3,278	4,990	4	1														
Virginia	2,962	10,473	14					1						1	9			1
Wabasha	2,622	2,622	3														1	
Warren	1,276	1,613	6											1		1		1
Waseca	3,103	3,054	3															
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	6				1											2
Winona	19,714	18,583	21			1	1								4	3		2
Winthron	813	1,043	0															
Worthington	2,386	2,385	1															

REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															1
Aitkin	1,719	1,638	1													1		
Akeley			0															
Appleton	1,184	1,221	2															1
Belle Plaine	1,121	1,204	1												1			
Biwabik		1,690	1															
Bovey		1,377	0															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	2													1		
Caledonia	1,175	1,372	2	2														
Cass Lake	546	2,011	2		1										1			
Chisholm		7,684	8		1										4			
Coleraine		1,613	0															
Delano	967	1,031	0															
Farmington	733	1,024	1															
Fosston	864	1,055	0															
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	4	1														1
Hibbing	2,481	8,832	13												5	1		3
Jackson	1,756	1,907	3												1	2		
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1													1		
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	3													1		
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	2											1				
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	1												1			
Nashwauk		2,080	1												1			
North Mankato	939	1,279	2															1
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	3															
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	0															
Pine City	993	1,258	1		1													
Plainview	1,038	1,175	2															1
Preston	1,278	1,193	1													1		
Princeton	1,319	1,555	4	1												1		
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	2															
South Stillwater	1,422	1,343	1												1			
Springfield	1,511	1,482	2												2			
Spring Valley	1,770	1,817	1															
Wadena	1,520	1,820	4												1			
Wells	2,017	1,755	4															1
West Minneapolis	2,250	3,022	1	1														
Wheaton	1,132	1,300	0															
White Bear Lake	1,288	1,505	2					1										
Windom	1,944	1,749	0															
Winnebago City	1,816	2,555	1												1			
Zumbrota	1,119	1,138	1															
STATE INSTITUTIONS																		
Anoka, Asylum			1															
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			4															
Fergus Falls, Hospital for Insane			7	3														
Hastings, Asylum			4	2	1													
Minneapolis, Soldiers' Home			7	1												1		
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			10			1												
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			7			1										1		
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			740	60	18	8	3	5	2		3	3		4	82	47	1	75
Total for state			1760	143	43	35	8	9	3		12	4		14	187	141	5	156

*No report received. Registrar not doing his duty.

119 stillbirths not included in above totals.

Short Interval Feeding

There are cases in private, as well as hospital and sanitarium practice, where the vital forces of a patient have suddenly been reduced by hemorrhage from accident and subsequent necessary surgical operation; or through the more deliberate, systematic devastation of these forces by acute disease.

In such cases it is clearly of paramount importance that the vital forces be restored to the normal as promptly as possible. The physiological way is, naturally, by means of feeding, in small portions, and at **short intervals.**

Physicians and nurses have found

Grape-Nuts

to be a most efficacious, convenient and agreeable form of easily assimilated nourishment, for short interval feeding.

Grape-Nuts is best served under such conditions—first, with **hot** milk for quick stimulation of the circulation; later, it is best served with cream, or part milk and cream, as the attending physician may find advisable.

Made of whole wheat and malted barley, Grape-Nuts contains the three essential food elements, carbohydrates, (largely converted into dextrin and dextrose); the protein and salts, which are so essential to cell elaboration.

The fat is easily gauged by the cream used in connection with the cereal food; and the well-known quality of easy and prompt assimilation possessed by Grape-Nuts insures the least digestive effort with the quickest restoration of body force.

We sometimes pass by the well-known on account of the very intimacy of long acquaintance. So, it is suggested, that in any case where you wish to administer the best nourishment at short intervals, you remember Grape-Nuts with cream or good milk.

The *Clinical Record,* for Physician's bedside use, together with samples of **Grape-Nuts, Instant Postum** and **Post Toasties** for personal and clinical examination, will be sent on request to any Physician who has not yet received them.

POSTUM CEREAL CO., LTD., BATTLE CREEK, MICH.

PUBLISHER'S DEPARTMENT

MALTED WHEAT

Malted wheat, like malted milk, is a really exceptional food and health product. It is also a delicious breakfast food. We think our readers should know all that can be learned about it from both the literature and a sample package of it.

It is made by the Sims Cereal Company of Minneapolis, and is to be had at all grocery stores. We trust every one of our readers will look into its merits both by testing it on the table and by examining the analysis of it as given in the Company's pamphlets. It is worth while.

THE FIRST NATIONAL BANK OF MINNEAPOLIS

It is with special pleasure that we call the attention of our readers to the First National Bank of Minneapolis, an institution of very large capital, a leader among banks in the Northwest, and yet one that meets the requirements of even the smallest depositors, as well as of the largest. Its officials, high and low, are extremely courteous and considerate, and ready to extend the facilities of the bank to every customer. It sells travelers' checks and foreign exchange, receives deposits on open account or certificate account with interest, and meets perfectly all the banking needs of all its patrons.

THE MIDWAY GENERAL HOSPITAL

The Midway General Hospital, so called because it is general in its work and is located in the midway district of St. Paul and Minneapolis, meets a real and urgent need, both on the part of the two cities and the country. It is a wholly non-sectarian hospital, conducted by a large staff of the leading men in St. Paul and Minneapolis, and at prices much below those charged, or even possible, in hospitals located in the heart of a large city, where the cost of everything is at the highest notch.

The rates of the Midway Hospital are from $10 to $20 a week for really excellent and home-like accommodations; and the services in the hospital and on the part of the staff are rarely excelled even for prices twice or three times as high.

THE YOUTH'S COMPANION IN 1914

Seven college presidents and a number of college instructors, including ex-President Taft, will contribute to The Youth's Companion during 1914.

Then there is Gene Stratton Porter, whose stories of Indiana woods and swamps have made her famous, and Kate Douglas Wiggin, who never wrote a dull line in her life, and Mrs. Burton Harrison, who remembers when conversation was really an art as practised in Washington and in the manor houses of Virginia. And this is just a beginning of the list.

If you know The Companion, you have a pretty clear idea of what is in store for next year's readers. If you do not know, ask us to send you sample copies—for instance, those containing the opening chapters of Arthur Stanwood Pier's fine serial—"His Father's Son." Full announcement for 1914 will be sent with the sample copies.

For the year's subscription of $2.00 there is included The Companion Practical Home Calendar for 1914, and all the issues of the paper for the remaining weeks of 1913, dating from the time the subscription is received. The Youth's Companion, Boston, Mass.

WASTE RECEPTACLES

The physician, surgeon, or dentist who hasn't in his office a modern sanitary waste receptacle is a whole lot behind the times. The modern, sanitary, and convenient receptacle is composed of an inner and outer can with a suitable strainer and with a lid that is lifted by placing one's foot on a lever near the floor.

The outer and inner receptacles are finished in white enamel or oxidized copper with nickel trimmings.

Messrs. Randles Bros., of Minneapolis, make these receptacles for $8.50, and they also make a line of sterilizers and heaters for surgeons and hospitals. The firm makes high-grade goods, and sells them at right prices.

The firm is a new one in the Twin Cities, but they come with a reputation for efficiency in their work and fair dealing with the profession.

ENDOBRONCHIAL TREATMENT OF BRONCHIAL ASTHMA

By Professor Dr. Henke

The essayist demonstrates an endobronchial spray. In the nose and throat dispensary of the University of Koenigsberg, twenty-four patients were treated endobronchially with the aid of this spray or with a bronchoscope. In addition to epinephrin treatment, a new product, Hypophysin, either combined with or without epinephrin in from 10 to 12 cc. Novocain solution, was used. There was no difficulty with the application and the patients bore it well. A number of them were cured, at least for the time they were under observation. A number of others showed marked improvement. Scarcely any failures were recorded. The investigator highly recommends this method for investigation.

In the discussion of Dr. Henke's paper, Dr. Borchardt said:

"I had the opportunity to examine most of the patients treated by the above-mentioned method, both before and after, and I am glad to confirm Dr. Henke's favorable results. Indeed, I have gained the impression that this method excels the methods of treating asthma per os, which we have used up to the present time. The result in a few especially stubborn cases which did not yield to any other treatment was simply marvelous. The use of Hypophysin in the endobronchial treatment of asthma which Dr. Henke introduced at my suggestion instead of adrenalin or any combination with the latter, is not far-fetched. Leaving out the pharmakodynamic resemblance of the epinephrin and Hypophysin action, we know from Houssay's recent investigations that hypophyseal extracts produce a long-continued ischemia when locally employed. Weiss was the first to recommend the combination of epinephrin with hypophyseal extracts. However, he did not expect a permanent result, but the cases of which a report has just been given can be regarded as permanent results."

Dr. Borchardt urgently recommends the more frequent use of hypophyseal principle in bronchial asthma.

Dr. Krause said that he treated several patients in the same manner, and is also extremely satisfied with the results of the endobronchial treatment of asthma with one-half per cent Novocain spray.—Deutsche med. Woch., No. 32, August 7, 1913.

THE
JOURNAL-LANCET

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THE TONSILS: SOME PATHOLOGICAL REASONS FOR THEIR REMOVAL*

By LORENZO N. GROSVENOR, M. D.
HURON, S. D.

Very many of the diseases of childhood, yes of adult life, too, are due to the pathological conditions found in the faucial tonsils; hence the importance of stopping to consider these lessons from the laboratory standpoint.

The faucial tonsils lie between the anterior and posterior pillars, i. e., between the palatoglossus and the palatopharyngeus muscles, with the plica tonsillaris above. The median or inner surface is covered by epithelium, while the lateral or outer surface is covered by the fibrous capsule of connective tissue. Extending into the lymphoid substance, from this capsule, are many finger-like trabeculæ of connective tissue, acting as supporting structure and carrying the blood-vessels and lymphatics.

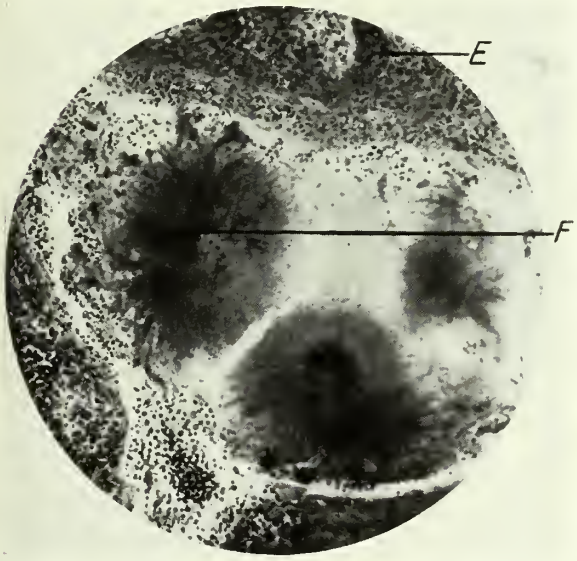

Fig. 1—Tonsil 30. Ray fungi in a crypt. E, Proliferated epithelia; F, Ray fungi. Note the feather-like tips of the radiating fibers. Magnification, 140 diameters.

Fig. 2—Tonsil 30. Ray fungi in a crypt. F, Three-ray fungi; F, Proliferated epithelia; C, Crypt; L, Lymphoid tissue. Magnification, 85 diameters.

*Read at the 32d annual meeting of the South Dakota State Medical Association at Vermillion, May 28 and 29, 1913.

The parenchyma is composed of lymphoid cells, massed together in a loose connective-tissue reticulum. Closely scattered through this mass are the follicles, made up of germinating lymph-cells and their products, young newly formed lymphocytes. The crypts are made by deep invaginations of the epithelium into the lymphoid substances, extending almost to the capsule.

The lymphocytes pass out of the follicles and are constantly moving in the direction of least resistance. Some of these cells work through the epithelium into the crypts, where they soon lose their identity, but most of them pass through

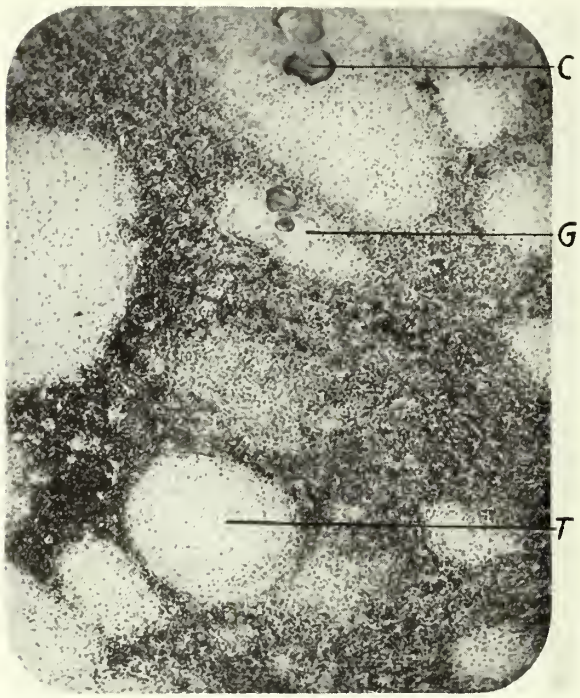

Fig. 3—Tonsil 43. Tubercular foci. T, Caseous areas; G, Giant cells; C, Deposits of calcareous salts. Magnification, 110 diameters.

the lymph-spaces and along the lymph-radicles in the trabeculæ and empty into the efferent lymphatics of the tonsil. In the crypts are found large numbers of these lymphocytes and cast-off epithelium and other detritus. The bacteria that pass over the tonsil, find that the crypts make the finest kind of an incubator, and there they rapidly increase and multiply.

By the action of the palatine muscles, during deglutition, the faucial tonsils are compressed, and some of the contents of the crypts are forced out to the surface, but much is forced still deeper into the crypts. Inasmuch as there are comparatively few layers of epithelium lining the crypts, the bacteria easily find their way through into the lymphoid substance and become foci of infection.

In about fifteen per cent of the tonsils that have been examined, microscopically, by the writer, there have been found, lodged in the crypts, many ray fungi. These appear as coarse, whitish granules, which, on microscopical examination, present a rounded mass, with granular center and innumerable radiating threads or fibers terminating in feather-like tips. (See Fig. 1.) These fungi are very similar to the ray fungi of actinomycosis, differing in that the radiating threads of the latter terminate in clubs.

The irritation of these fungi causes a peculiar proliferation of the epithelium lining the cryptal

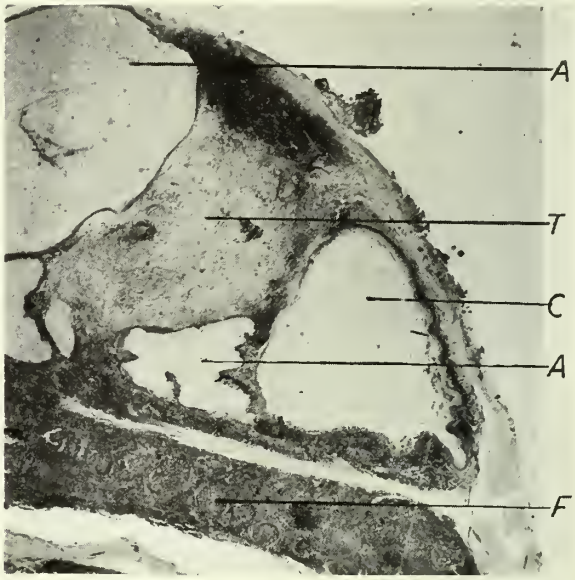

Fig. 4—Tonsil 39. Tubercular abscess. A, Abscess; C, Cyst; F, Lymphoid follicles; T, Caseated area. Magnification, 16 diameters.

walls about them, a very irregular finger-like massing and crowding of the epithelium into the lymphoid substance of the tonsil. (See Fig. 2.) This peculiar proliferation is found in all the crypts of the tonsils where these fungi are located, but not in any of the other tonsils examined.

In five per cent of the tonsils examined the tubercle bacilli have passed into the crypts and on into the lymphoid substance and started many tubercular foci. In sections from tonsil No. 43 there are many small, poorly stained areas, scattered along through the lymphoid tissue on each side of a deep crypt. These present the typical

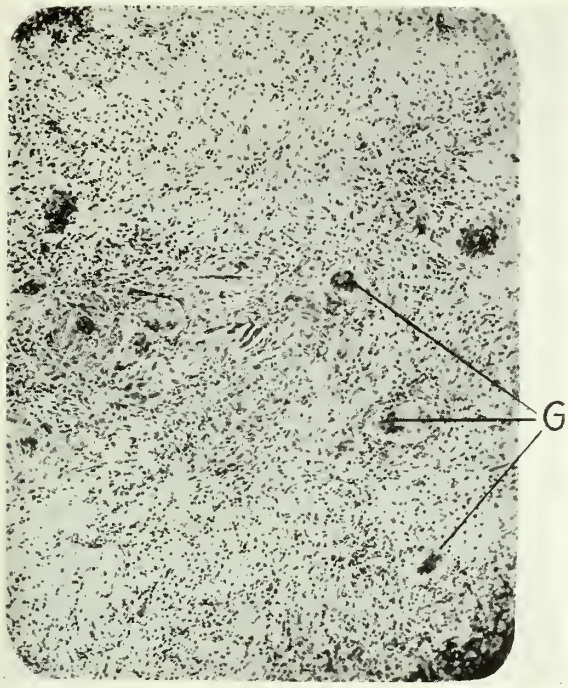

Fig. 5—Tonsil 39. Caseated area. G, Giant cells. Magnification, 110 diameters.

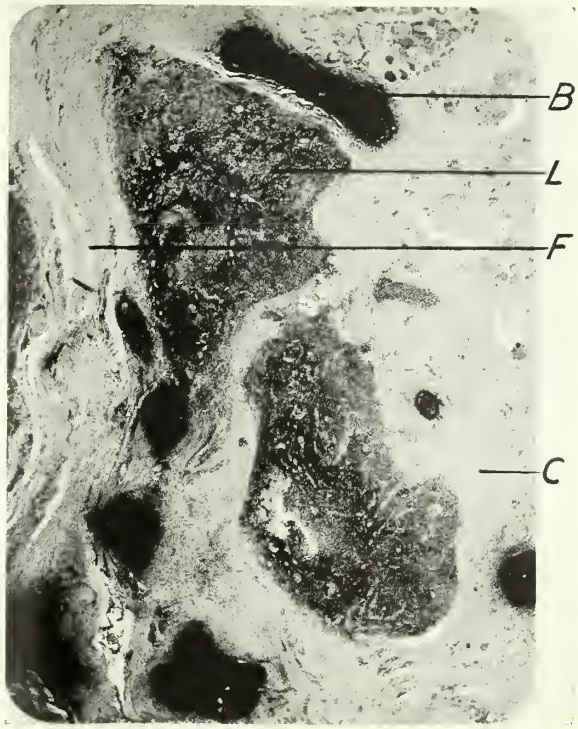

Fig. 7—Tonsil 40. Fibrous bands with areas of cartilage and bone. F, Fibrous connective tissue; C, Cartilage; B, Bone; L, Lymphoid tissue. Magnification, 25 diameters.

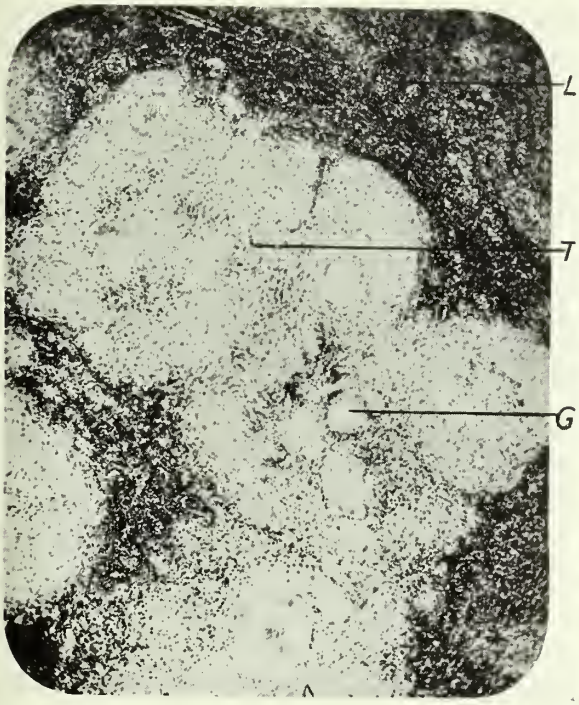

Fig. 6—Cervical lymph-gland. T, Casseated area; G, Giant cells; L, Lymphoid tissue. Magnification, 110 diameters.

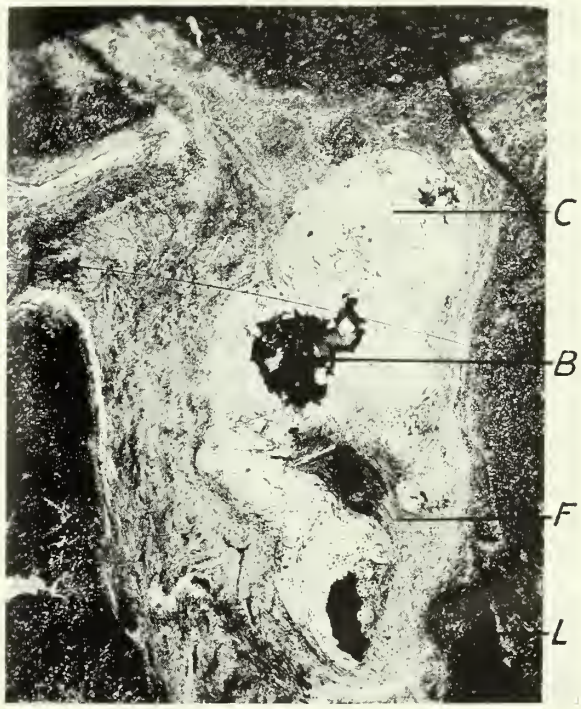

Fig. 8—Tonsil 49. Area of cartilage and bone. F, Fibrous tissue; C, Cartilage; B, Center of ossification; L, Lymphoid tissue. Verhoeff's stain. Magnification, 55 diameters.

epithelioid and giant cells, with more or less of caseation. (Fig. 3.) Sections from the tonsils of another case show a more advanced stage. The tubercles have coalesced so that there are two or three large areas of caseated tonsil, taking the stains very poorly.

Still another case presents a tubercular abscess in the upper end of the tonsil. In the center of the picture there is a large tubercular area, poorly stained, but showing many epithelioid and giant cells. To the right of this is an epithelial-lined cyst, probably the bottom of a crypt, full of pus and detritus. At the other side and below there are several abscess cavities full of pus, breaking into the lymphoid substance. (See Figs. 4 and 5.)

The tubercular infection does not stop within the tonsillar substance, but many of the bacilli are carried on down into the glands of the neck, first to the large tonsillar lymph-gland and then to the many other glands about the sternocleidomastoid muscle. In the sections of glands removed from the neck of a school girl there is presented a beautiful picture of tubercular lesions. (See Fig. 6.)

Five years ago I had the pleasure of presenting to the Chicago Laryngological Society a paper on the finding of cartilage and bone in the tonsils removed from a young woman. Since then I have found this condition in three more cases. The conclusions drawn at that time still hold good and are as follows:

1. The cartilage and bones are not part of the styloid process, for it is not possible to palpate the stump of the styloid process between the inferior maxilla and the vertebral column. Then, too, there is not a single nodule of cartilage and bone, but a ring or triangle with tonsil-tissue in the center.

2. The condition is not one of metaplastic changes, for there is no clinical history or pathological findings that would cause such changes.

3. The cartilage and bone found in these tonsils was probably developed from a matrix of unused or displaced embryonic cells derived from the second branchial arch. (See Figs. 7-8.)

In view of these lesions so graphically presented it behooves us to remember that the faucial tonsils are a frequent source of infection and disease, and that it is not the large protruding tonsils that are the most dangerous, but the small submerged ones, those that are bound down by old inflammatory adhesions.

The practical lesson is that the tonsils should be completely removed. A tonsillectomy, not a mere tonsillotomy, should be performed.

DISCUSSION

Dr. J. G. Parsons (Sioux Falls): I enjoyed Dr. Grosvenor's paper very much. It is very fortunate for us to have the illustrations that he has shown us here to give us a tangible idea as to the pathological conditions which we are so liable to meet with in the tonsil. It is rather difficult for many practitioners to conceive of the real danger that there is in the tonsil, aside from anything connected with its enormous size, and I am very glad Dr. Grosvenor made the point of that particular phase of the subject, that the small tonsil is very liable to be the more dangerous one.

A great deal has been said in the last decade about the matter of proper treatment for disease of the tonsil. Probably some of the members of this Association recall very distinctly that within the last ten years or so there was considerable difficulty experienced by those who were interested in making a plea for tonsillectomy, claiming that the old-timed tonsillotomy (taking away a piece of the tonsil) was becoming out of date. I feel that the pendulum has swung a little too far in the other direction, and that oftentimes there is more work done on the tonsils than there need be. This has been aptly styled by Mackenzie as "the massacre of the tonsil." Those of you who have read Mackenzie's paper will admit that a tonsil which is known to be diseased is a harboring point for all sorts of infection, which will be passed on into the lymphatic circulation, and so on. Some practitioners believe that rheumatic infections are brought about through disease of the tonsil. Although Mackenzie does not minimize the importance of the removal of the diseased tonsil, he makes a plea for judgment in attacking it.

A few years ago I was much interested in some work being done by Dr. Wright, a dentist of Boston, who is connected with the throat department of the Massachusetts General Hospital, in regard to the relation of the tonsil to eruption of the molar tooth. Dr. Wright found certain definite periods when there was a physiologic enlargement of the tonsillar substance in connection with the absorption of the tooth sac, when secondary eruption of the tooth took place. He cautioned that this be not mistaken for a pathologic process; and that attention be directed towards keeping infection out at that particular time, keeping the mouth in as aseptic condition as possible, and keeping the oral cavity thoroughly cleansed, so that the tonsils under the stress of this extra-physiologic enlargement will not more easily become a prey to infection. I believe there is considerable in the teaching of Dr. Wright along these lines, and while I believe that, when the tonsil is recognized to be pathologic, it should be thoroughly removed, we should bear this in mind and not merely whittle out tonsils on suspicion when they look as if they are diseased.

DIAGNOSIS OF SURGICAL CONDITIONS OF KIDNEY AND URETER*

By V. J. LaRose, M. D.

BISMARCK, N. D.

The diagnosis of surgical affections of the kidneys and the ureters was, in the past, a most difficult and unsatisfactory procedure. Even at the hands of the most skillful diagnosticians and surgeons, incomplete, mistaken, or disastrous diagnoses would often be made because of the misleading clinical signs. But the developments of cystoscopy and ureteral catheterization, supplemented by the *x*-ray, has revolutionized this branch of our work within the past few years. With the accurate information obtained by these methods, renal and ureteral diagnoses have been reduced to a fairly exact science, and surgical treatment of the urinary organs has improved greatly in its results.

Fig. 1—Fallacies of the x-ray. Shadow in bowel produced by feces simulating vesical calculus.

Fig. 2.—Fallacies of the *x*-ray. The shadow corresponding to calculus in the kidney pelvis, disappeared after a dose of castor oil.

But, while the differential diagnosis between lesions of the urinary tract and lesions of other abdominal organs has been so simplified by the use of the cystoscope and the *x*-ray that we are able to make a positive diagnosis of the majority of the disorders of the kidney and the ureter, we must not place too much dependence on any one method. Only a close examination and careful consideration of all the evidence obtained by all the methods of examination will lead us in the right direction. Detailed history and thorough physical, chemic, microscopic, and bacteriologic investigation, together with cystoscopic and *x*-ray examinations, are the means by which we are to draw our deductions.

The clinical history is at times so definite that a provisional diagnosis may be made at once; but in the majority of cases, it proves quite misleading, and the physician must ever be on his guard lest he misinterpret a pain in the kidney region which might be referred from an entirely different organ. Again, the compensatory hypertrophy of the sound kidney may cause more subjective symptoms, or pain, than its mate, which may be undergoing a complete, although almost painless, destruction.

A patient presenting a history of intermittent

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or persistent bladder irritability should have a careful examination made of a catheterized specimen of the bladder urine to determine the presence of pus, blood, or bacteria. Many patients complaining of bladder irritability are dismissed by the physician with a prescription for some urinary antiseptic or a sedative, or, possibly, a few bladder-washings are given and the diet regulated. While this treatment, unquestionably, will cure a few cases of mild cystitis, it may also cause one to overlook a more serious condition somewhere above the bladder by giving a temporary soothing relief.

In the physical examination palpation is about the only method at our disposal. It is unreliable

Fig. 3—Pleboliths, showing to the outer side of a collargol injected ureter.

in the majority of cases, and, by placing too much dependence upon it, many surgeons have been chagrined when cutting down upon a kidney to find it normal or enlarged by compensatory hypertrophy, instead of the pathological kidney that the history and physical examination led them to suspect was present. Tumors of the liver, gall-bladder, colon, pancreas, and spleen, are often difficult or impossible to differentiate from the kidney. Vaginal and rectal palpation should not be forgotten, as stones and inflammatory thickening of the lower ureter may be felt by this method. In the male the prostate, seminal vesicles, vas deferens, and epididymis should be carefully examined.

On examining the urine and finding pus, blood, or bacteria present, we are led to further investigate the entire urinary tract. Few surgical lesions of the kidney exist without some one or all of these elements being present in the urine. Pus cells may be derived from any part of the urinary tract, and their source must be determined before the diagnosis can be completed. Pus in an acid urine with a history of nocturnal frequency, especially in a young adult is regarded by Braasch and others as a renal tuberculosis until proven otherwise. Hemorrhagic urine always leads to the consideration of kidney or ureteral calculi, tuberculosis, varicosities, cysts,

Fig. 4—Styletted catheters, showing the course of the ureters. The right one has entered the kidney pelvis. The shadow above the bend of the catheter is a small calculus in the upper pole of the kidney.

or malignant tumors of the kidney, provided the bladder is found free from foreign bodies or growths. With a bacteriuria, microscopic and cultural methods should be used to determine the infecting organism. The most common forms infecting the urinary tract are tubercle bacillus, colon bacillus, and certain strains of staphylococci and streptococci.

With the cystoscope we can observe the condition of the bladder mucous membrane and note the extent and location of inflammation and ulceration, the presence of foreign bodies and growths, the condition of the ureteral openings, whether they are inflamed or ulcerated, and the appearance of the urine excreted, which, on the side of the affected kidney, may vary from normal to a slight cloudiness or almost pure pus or blood.

By catheterizing the ureters the urine can be drawn from each kidney separately and reserved for microscopic and bacteriologic examinations later; ureteral obstructions can be demonstrated and their distance from the ureteral openings estimated; and the capacity of the renal pelves measured. By pelvic distension valuable information can be obtained from the patients as to the similarity of the artificial renal colic thus produced to their previous attacks of pain.

Functional tests of each kidney can be made before removing the catheters. In case of probable nephrectomy, this means should always be used to determine the excreting power of the kidney which will be compelled to assume the whole responsibility of urine-excretion by the removal of its mate.

Fig. 5—Shadow in left kidney opposite the third lumbar vertebra, lying directly over the edge of the psoas muscle. Stone in lower pole of left kidney.

By the radiograph we are able to detect stones in the kidney and ureter, and in some cases the kidney itself can be outlined. It is also possible in some tuberculous kidneys to demonstrate caseous and calcified deposits. Radiographic diagnosis depends entirely on proper technic and correct interpretation, as there are many errors one may fall into. Among the most common errors are shadows produced by fecal masses in the bowel, which may lie over a stone and completely obscure it. Stones lying over bony parts, such as the transverse processes of the vertebræ or at the pelvic brim, are frequently missed, owing to the density of the bone obscuring the stone shadow.

Phleboliths in the pelvic veins are very common, and many times their situation corresponds to stone low in the ureter or at the bladder entrance. Unless some means are used to differentiate them, they may be easily mistaken for ureteral stones. Other visual fallacies in radiography of ureteral calculi are calcified glands, atheromatous patches in blood-vessels, exostoses of vertebræ or pelvic bones, warts or growths on the patient's back or abdomen, and flaws in the gelatin coating of the photographic plate. Owing to these numerous fallacies in the *x*-ray diagnosis of calculi, it became necessary to devise some means of differentiating shadows cast by structures within the ureter and those outside of it. Kollischer and Schmidt, of Chicago, conceived the idea of introducing lead-fuse wire into the ureteral catheter and then catheterizing the ureter. When obstruction was met, a radiograph was taken with the styletted catheter in the ureter. In this way they were able to locate exactly a great many stones; but it was soon found that there were still many sources of error, such as a stone in a sacculated ureter appearing to one side of the styletted catheter, phleboliths or calcified glands might appear in direct contact with the catheter, owing to the angle at which the radiograph was taken. Obstructions due to stricture would, of course, be invisible.

Fig. 6—Two stones in the lower ureter, with phlebolith to outer side.

Some five years ago Voelker, of Heidelberg, attempted to outline the renal pelvis by injecting a shadow-casting solution through the ureteral catheter before radiographing. Very little at-

tention was paid to this method until a few years ago when Braasch demonstrated that, by injecting a solution of collargol into the ureter and kidney pelvis and then radiographing, he could positively diagnose different degrees of hydronephrosis due to stone or stricture of the ureter. Ureteral kinks, causing intermittent or permanent obstruction, due to conditions outside the ureter, such as tumors, inflammatory adhesions, and aberrant vessels passing to the lower pole of the kidney, could also be demonstrated. Stones in the kidney cortex can be identified, as can the dilated calyx due to obstruction by a pelvic stone. Growths of the kidney, encroaching on the pelvis

Fig. 7.—Shadow opposite the third left lumbar vertebra, external to the border of the psoas muscle; calcified deposit in a tuberculous kidney.

and diminishing its size and contour, can often be recognized. Tuberculous disease of the kidney, with communicating cortical abscesses and dilated ureter due to stricture lower down, can be demonstrated.

With the collargol plate we can demonstrate the position of the kidneys and such congenital anomalies as horseshoe kidney, pelvic kidney, and solitary kidney. Before removing a kidney, it is a necessary procedure to demonstrate a kidney on the opposite side.

In the examination of cases with suspected lesions of the urinary tract, it is well to have a systematized routine, so that enough information may be gained at the first examination, thus sparing the patient the ordeal of a second or third examination.

Our method at Bismarck is, first, clean out the entire intestinal tract as follows: The afternoon before examination the patient is given one ounce of castor oil, a light supper of broth and toast, and breakfast the same, and a high enema is then given an hour or two before the *x*-ray examination is made. This eliminates shadows that may be cast by fecal masses. A radiograph of the entire urinary tract on both sides is then made. Two 10x12 plates are used; and one exposure is made of the area covering the kidneys and upper ureters, while a second covers the lower ureters and bladder. These plates are examined for shadows that may be cast by calculi or calcareous deposits in or about the kidneys or ureters.

Fig. 8—Normal kidney pelvis injected with collargol solution.

The patient is now ready for cystoscopic examination, and, with the data from the radiographs, we can proceed in a more rational manner.

If the plate shows suspicious shadows anywhere along the urinary tract, by observing the ureteral openings and the urine coming from them, we may form an opinion as to trouble higher up. By catheterizing the ureters, urine is collected from each kidney. The catheter is then passed up the ureter, and, if obstruction is met, the distance from the bladder is noted. The capacity of the kidney pelves is now measured by gently dilating them with a solution of methylene-blue, observing any return flow and also the amount of solution needed to produce the first twinge of pain. Valuable information

is thus obtained from the patient as to the location of the pain and its similarity to the previous attacks of pain or "spells" complained of. In cases where no shadows are found on the x-ray plate the cystoscope is removed, leaving the catheters in the ureters, and a solution of collargol is introduced through the ureteral catheters. Care is taken to introduce, slowly, a slightly smaller amount than was required to produce renal pain or pelvic distension. Radiographs are again taken of the entire urinary tract. The best results are obtained if this is done while the collargol solution is being introduced. After the plates have been exposed the catheters are allowed to remain in for a short time to drain off the collargol solution.

Fig. 9—Enlarged kidney pelvis communicating with abscesses in the upper pole. Tuberculosis of kidney and ureter.

We find it best to have the patient remain in the hospital for at least the day of examination, because considerable discomfort is occasionally experienced following pelvic distension.

The following cases have been selected from our records to demonstrate the various procedures used:

CASES

Case 1.—Mrs. C. B., aged 34, admitted to hospital June 24, 1912. One week ago the patient was accidentally struck over the right loin by a gate; and two days later she had frequent and burning micturition. She now complains of pain in the upper right quadrant, with chills, fever, and vomiting.

Examination.—Pulse, 120; temperature, 104°; delirious. Tenderness can be palpated in the upper right abdomen and costovertebral angle.

Urine.—A catheterized specimen contains pus, red-blood cells, and motile bacteria. Culture in glucose agar shows colon bacilli. June 26th: temperature, 103°; patient became violent and unmanageable. Coli communis vaccine treatment commenced. Her condition remained the same up to July 10th, when she grew gradually worse, passing urine and feces involuntarily. Leucocyte count averaged 17,000. As she was growing steadily worse, surgical treatment was decided upon.

Cystoscopy showed a moderate inflammation of bladder; the right meatus was reddened and slightly eroded, with an occasional dribble of cloudy urine; the left meatus was normal, spurting clear urine. The right urine contains pus and motile bacteria; culture in glucose agar yields gas; no tubercle bacilli found. Left urine is negative.

Diagnosis.—Acute pyelonephritis, due to colon bacillus infection.

Fig. 10—Abscesses of kidney; almost complete destruction; tuberculous pyonephrosis.

Operation.—Nephrotomy. Kidney enlarged and densely adherent. Incision through posterior convexity releases a considerable quantity of infected urine and pus. Tube-drainage. Recovery uneventful. The patient left the hospital on the twentieth day after operation.

Case 2.—Mrs. F. W. D., aged 38, admitted to hospital Feb. 7, 1911. Since the birth of her last child, twenty months ago, she has had pain and soreness in the left flank and abdomen. One week ago there was severe bladder straining and frequency. Three days ago, there were sharp pains in left kidney region, referred to the bladder.

Examination.—Temperature, 101°; pain in lower left chest on deep inspiration; deep tenderness over the left kidney and along the course of ureter. The urine contains albumen, pus, and granular casts.

Cystoscopy.—The base of the bladder is moderately inflamed with marked reddening around the left ureteral opening, which would occasionally send out a spurt of cloudy urine. The right meatus is normal, spurting clear

urine. A ureter catheter passed easily to the left kidney. The left urine contains pus; the right is normal; no tubercle bacilli found.

The *x*-ray shows a shadow corresponding to the lower pole of the left kidney (Fig. 5).

Diagnosis.—Left renal calculus.

Operation.—Nephrotomy. Stone found lying free in small abscess of lower pole.

CASE 3.—Mrs. J. S. On Sept. 13, 1912, she was sent to the hospital for operation, with a diagnosis of acute appendicitis. Three weeks ago, after doing a heavy washing, she was suddenly taken with cramps across the lower abdomen, with marked tenderness in the lower right quadrant. This soreness persisted and was always worse from a half to one hour after breakfast, so that she had to remain in bed for a few hours; she then felt well enough to get up and do her house-work and remain up the rest of the day. She slept well at night, and had no abdominal pain and no urinary distress. Five days ago she had a sudden attack of cramp-like pains

Fig. 11—Chronic pyelitis due to a ureteral kink, causing intermittent obstruction.

in the lower right abdomen, with nausea, chills and fever. Three days ago the pain became so severe that morphine was given hypodermically. She vomited green fluid freely. Has a constant nausea. For the past twenty-four hours she has pain on urination.

Examination.—Palpation locates a deep tenderness well down in the lower quadrant. Vaginal examination shows cervix soft, uterus slightly enlarged, and the right adnexa tender. (Last menstruation, July 29th; flowed profusely). Urine shows trace of albumin, red-blood cells, and leucocytes. *X*-ray plate shows three shadows in the region of the lower right ureter, one about the size and shape of an olive pit with a smaller one lying directly behind it. There is a third shadow, smaller and lying external to the other two. (Fig. 6.) *X*-ray diagnosis: two stones in lower ureter; third shadow probably a phlebolith.

Cystoscopy.—Bladder, normal; right meatus, swollen and edematous, with an occasional dribble of cloudy urine. The ureteral catheter meets obstruction about one and one-half inches from the ureteral opening.

Diagnosis.—Ureteral calculi and pregnancy.

Operation.—Ureter opened through vagina and two stones removed.

The interesting features of this case are the differentiation between appendicitis, extra-uterine pregnancy, and ureteral calculus.

CASE 4.—J. K., farmer, aged 25, entered hospital June 9, 1912. No history of previous illness. For the past two years he has had frequent micturition, both day and night. Since April, he has noticed a small amount of blood at the end of urination, especially after a long drive. He has lost about six pounds in weight within the past two years; otherwise he is well and has been doing a full day's work up to the present time.

Examination.—Abdomen, negative; kidneys, not palpable; and no tenderness in costo-vertebral angle on either side. Rectal examination, negative, except for tenderness on the left side of the bladder. *X*-ray plate

Fig. 12—Ureteral kink in case of intermittent hematuria.

shows a faint blurred shadow in the left kidney area. A second plate taken twenty-four hours later, shows the same shadow. (Fig. 7.) Cystoscopy shows an inflamed trigone and small ulcerations around the left ureteral opening. The ureter catheter met obstruction one inch from the bladder; urine is acid and contains considerable pus; no tubercle bacilli found.

Operation.—June 17th, the left kidney was exposed. Fatty capsule adherent over whole kidney. Ureter thickened, size of a small finger. Kidney removed. It contained large abscesses and caseous material. In one, there was a marked deposit of lime salts, which explained the *x*-ray findings. Scrapings from abscesses contained tubercle bacilli.

Diagnosis.—Left renal tuberculosis.

CASE 5.—E. P., farmer, aged 23, entered hospital Jan. 13, 1912. For the past six months he has had pain in the lower right abdomen. Two nights ago there was a sudden attack which lasted two hours. Last night there was an attack lasting eight hours. It began in right loin and passed down through the abdomen to the right testicle.

Examination.—No pain, but a feeling of numbness in the right side. On palpation, a slight tenderness was demonstrated in the lower right quadrant. Urine shows red-blood cells and leucocytes. Cystoscopy: Bladder, normal; slightly cloudy urine from right ureter. Styletted catheters pass easily to each kidney. *X*-ray with catheters in ureters. Radiograph shows right catheter has entered kidney pelvis. A shadow is shown above the bent catheter. (Fig. 4.)

Diagnosis.—Stone in the upper pole of the right kidney.

Operation.—Kidney exposed and opened at its superior convexity. Stone palpated between the finger and thumb and removed.

Case 6.—Miss K. J., aged 20, telephone operator, admitted to the hospital July 5, 1912. Complains of pain in the right side for the past two years. Urinary frequency and nausea when pains are severe, with soreness in lower abdomen for several days following attack.

Examination.—Right kidney tender and freely movable. Marked tenderness at McBurney's point referred to epigastrium. Urine, normal. *X*-ray shows a small shadow in the region of the lower right ureter. Cystoscopy showed the bladder and ureter openings normal. Distension of the right kidney pelvis produced a pain similar to attacks of pain in the loin, but different from pain in McBurney's area. A styletted catheter was passed into the lower right ureter and radiographed. Plate showed the shadow external to the catheter. Probably a phlebolith.

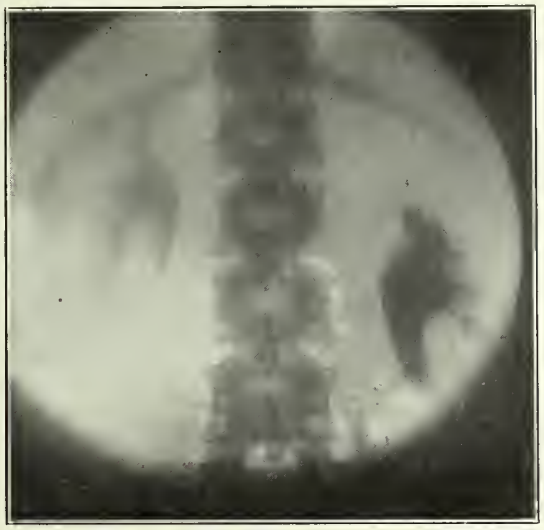

Fig. 13—Intermittent hydronephrosis. Ureteral kink, due to aberrant vessles.

Operation.—Appendectomy and fixation of the right kidney. An answer received to a letter of inquiry, April 30, 1913, states that she has been entirely free from pain and urinary frequency since operation.

Case 7.—Mrs. F. H., aged 25, admitted to hospital July 10, 1912. Seven months ago she had a sudden attack of pain in the lower right abdomen, was confined to bed for a week. Has had several attacks since. Urinary frequency both day and night since first attack. She has noticed that urine has been cloudy for several months but has never noted blood.

Examination.—Chest: The left lung shows diminished expansion with retracted apex. Probably a quiescent tuberculous focus. Abdomen: general tenderness, most marked in lower right quadrant. Urine: acid, pale, cloudy, contains pus and a few red-blood cells. Cystoscopy: trigone inflamed; beginning ulceration around right meatus. The rest of the bladder mucous membrane shows small areas of moderate redness. Left meatus, normal, spurting clear urine. Collargol *x*-ray plate shows right kidney pelvis dilated and communicating with abscesses in upper pole; right ureter enlarged, due to obstruction lower down. (Fig. 9.) Urine from right kidney contains pus and tubercle bacilli. Left is negative.

Diagnosis.—Tuberculosis of right kidney and ureter.

Case 8.—Mrs. J. L. W., aged 30, entered hospital October 30, 1912. For the past two years she has been troubled with intermittent attacks of backache and bladder irritability. Was confined one year ago; no post-puerperal complications. Two months ago the bladder became much worse, and the urinary frequency and tenesmus were constant, both day and night.

Fig. 14—Intermittent hydronephrosis.

Examination.—Left lung shows evidence of some former infection, probably a tuberculosis. Both kidneys palpable with no marked tenderness. Vaginal examination: uterus normal, bladder tender, especially on left side. Urine: specific gravity, 1010; pale, cloudy, acid, and contains pus. *X*-ray examination, negative. Cystoscopy: bladder mucous membrane moderately inflamed, with small areas of deep injection on posterior wall. Left meatus shows a typical golf-hole appearance, with an occasional oozing of a few drops of cloudy urine. Right meatus, normal, spurting clear urine. Functional test: sulphonephthalein, 6 mg. in lumbar muscle. Right kidney, first trace in fifteen minutes; total elimination in two hours, 30 per cent. Left kidney, first trace in twenty minutes; total elimination, 14 per cent. A total elimination of 44 per cent, which shows a marked renal deficiency. Urine from left kidney contained tubercle bacilli.

Collargol *x*-ray plate showed multiple abscesses in left kidney communicating with pelvis. (Fig. 10.)

Diagnosis.—Left renal tuberculosis. On admission, the total urine for twenty-four hours was 1,200 c. c. with a specific gravity of 1010 and total urea elimination of 9 gm. The patient was kept under observation for several weeks until the daily urine averaged 2,000 c. c. with a total urea output of 15 gm. The left kidney was then removed. Following the operation there was no marked change in the urinary output, the daily average equaling 1,500 to 2,000 c. c. with 12 to 15 gm. urea. Uneventful recovery.

Case 9.—Mrs. P. M. D., aged 39, entered hospital May 24, 1912, with a history of sepsis following abortion one year ago. She complains of urinary frequency with

Fig. 15—Dilated ureter and renal pelvis. Intermittent obstruction. The patient was operated on for ovarian cyst and adhesions four years ago.

tenesmus both day and night. She has been worse within the past six months. She has frequent attacks of chills, fever, and sweating which come on at irregular intervals and last for several days.

Examination.—Chest, negative; abdomen, general tenderness; both kidneys palpable and tender. Vaginal examination: uterus in good position and freely movable; bladder, marked tenderness on palpation; urine, cloudy, acid, specific gravity 1010, albumin and pus present, no tubercle bacilli found. Cystoscopy: base of bladder covered with pale granular tissue, showing a chronic inflammation; posterior wall shows areas of deep injection, but no ulceration; both ureteral openings surrounded by a reddened areola. Catheters passed easily up each ureter; urine flows from each catheter at normal rate. Injected 6 mg. of sulphonephthalein in the lumbar muscle and estimated the functional capacity of each kidney with the following result: First trace appeared simultaneously at end of twenty minutes; after two hours each kidney showed an elimination of 30 per cent, or a total capacity of 60 per cent. The urine from each kidney contained pus, that from the right being much in excess. Numerous smears failed to show the presence of tubercle bacilli. Cultures were made and guinea-pigs inoculated with urine from the bladder and each kidney with a negative result. A cutaneous tuberculin test proved negative. August 3, 1912, a second examination was made. A collargol *x*-ray plate showed a rather distorted pelvis of normal size in each kidney, with the right one lying quite low in the flank. A well-defined ureteral kink was shown about one inch from the right kidney pelvis. (Fig. 11.) Microscopical, cultural, and animal inoculation methods again proved negative. Numerous smears were made from the centrifuged sediment of the entire twenty-four urine without finding tubercle bacilli. During the time the patient remained in the hospital she had several attacks of chills and fever, lasting from four to six days. At these times it was noted that the right kidney would enlarge and become very tender and painful. The urine would become almost clear and the amount of pus markedly diminished. The leucocyte count averaged 9,000. After three or four days the right kidney would again assume its normal size; the temperature would return to normal; and the urine would again become loaded with pus.

Operation.—Flank incision and right kidney exposed. Adhesions found between ureter and lower pole of kidney. Incision made over dorsum of kidney at lower pole, and pelvis explored with negative findings. Adhesions freed and kidney replaced by shelf operation. The patient is now in the hospital in the ninth month of pregnancy, awaiting confinement. She still has pyuria and urinary frequency, but has not had an attack of chills and fever since operation.

Diagnosis.—Double pyelitis with intermittent obstruction to right pelvis, causative organism, undetermined.

Case 10.—Wm. J., aged 30, laborer, venereal history, negative. Entered hospital October 12, 1912. One year ago he noticed that he passed bloody urine for a day; none since until three days ago, when he noted urine full of blood and dark clots, passed freely without pain, tenesmus, or frequency. His health is perfect, has experienced no loss of weight or strength, and has never missed a day's work through sickness. *X*-ray examination, negative for calculi.

Examination.—No signs of venereal disease; no soreness or tenderness in abdomen or renal areas. Blood-pressure, 120. Rectal examination, negative. Cystoscopic examination: bladder mucous membrane normal; both meati normal; urine from right is hemorrhagic; that from the left is clear. Ureteral catheters pass easily to each kidney. Urine obtained from right kidney loaded with red-blood cells; left urine negative. A number of smears made from the right urine and the sedimented bladder urine failed to show tubercle bacilli. Guinea-pig inoculations proved negative. Collargol *x*-ray shows a narrow elongated kidney pelvis with a sharp kinking of the ureter. (Fig. 12.)

Diagnosis.—Lies between essential hematuria, tuberculsosis, and malignancy. From the fact that there is no loss of weight or strength and no urinary frequency, I should consider it an essential hermaturia, possibly caused by ureteral kink.

Case 11.—Mrs. J. O., aged 28, entered hospital June 21, 1912. For the past nine years she has complained of pains in the right flank, accompanied by frequent urina-

tion, lasting about a day at a time. These attacks are usually brought on by overwork.

Examination.—Right kidney palpable and tender, lying rather low. Cystoscopy: trigone slightly inflamed; both ureteral openings normal; catheter passed up right ureter without obstruction; urine dribbled freely for a short time; pelvic distension required 35 c. c. to produce pain, which was accompanied by a desire to urinate. This she describes as typical of her attacks. Catheterized specimens of urine from the bladder, and each kidney proved negative. Collargol *x*-ray of right kidney shows enlarged pelvis with kinked ureter. (Fig. 13.) At operation the ureter was found kinked and adherent, caused by aberrant blood-vessels to the lower pole of the kidney. Adhesions freed, vessels tied off, and kidney replaced by shelf operation.

Diagnosis.—Intermittent hydronephrosis.

Case 12.—Mrs. A. F. H., aged 49, entered hospital August 29, 1912. Complains of attacks of left sided abdominal pain; no urinary distress. Vaginal examination: left adnexa tender and indurated. Cystoscopy: bladder and ureters normal. Pelvic distension of left kidney produced pain similar to attacks. Collargol *x*-ray pelvis of left kidney slightly enlarged, as was lower portion of left ureter. (Fig. 14.) At operation the left tube was found thickened and adherent to the indurated broad ligament, which probably caused intermittent ureteral obstruction, bringing on the attacks of left-sided pain complained of. Nothing was done to the kidney or ureter, as the plate did not show enough abnormality to warrant interference.

Case 13.—Mrs. E. M. T., aged 30, entered the hospital March 20, 1913, complaining of backache and abdominal pains. Had operation for appendicitis and right ovarian cyst in May, 1909. For past four years attacks of pain in right kidney area passing down the course of the ureter have followed any overexertion. Attacks of sudden onset, but not definitely associated with vesical tenesmus, but rather an oliguria, followed by a polyuria, when the attack passes off. Urine contains a trace of albumen and a few red-blood cells, *x*-ray, negative for calculi. Cystoscopy shows normal bladder with normal meati. There is no obstruction to ureteral catheters on either side, but their introduction into the right ureter caused severe pain. Urine from the catheter in the right ureter is clear and dribbles steadily for two minutes. Pelvic distension with 30 c. c. produces pain along the course of the lower ureter, similar to attacks. Collargol *x*-ray shows a dilated ureter and enlarged kidney pelvis. (Fig. 15.)

Diagnosis.—Obstruction to lower ureter, causing hydrocureter and intermittent hydronephrosis.

SUMMARY

1. Symptoms and physical signs are unreliable in the diagnosis of surgical affections of the urinary tract, and grave errors in diagnosis may be made in placing too much dependence upon them.

2. The cystoscope used in conjunction with the *x*-ray is the only means of accurate diagnosis.

3. All cases of obscure abdominal pain, especially when associated with urinary symptoms, should be subjected to *x*-ray and cystoscopic examinations.

4. Examinations with negative findings are of as much importance as examinations with positive findings.

DISCUSSION

Dr. T. Roy Ringo (Minot): The paper has impressed me very much; it seems to me that we are to be congratulated upon having a paper of this kind. One impression I have, however, is this: We are apt to get a little bit too enthusiastic over the possibilities for ourselves when we notice the work that Dr. LaRose has done. The superiority of his technic allows him to demonstrate things that are not possible for everybody. The subject, of course, is a new one, and it will probably be new to most of us because of the difficulty of his technic. I have had some experience with this, but I cannot cite the glowing cases the doctor was able to demonstrate, because I have not been able to effect the technic. This is a distinct specialty in itself. I might cite a case or two in point. The doctor mentioned a case illustrating the similiarity of symptoms produced by the examination. I remember distinctly a married woman who came to the office complaining. She came for an operation for appendicitis, in fact. The history of the case was not just exactly typical, and I attempted to catheterize the right ureter, and an acute attack was produced, which was not very marked at the time, but I allowed her to leave. I quit the examination because it was so painful. She left the office, but in an hour her husband was back and said her pain was so severe she had to have something done for it. The catheter did not extend into the ureter over one-half inch. I gave her morphine, and, unfortunately, lost sight of the case, but I believe there is no doubt that the case was not one of appendicitis, but was due to some condition in the ureter, as the urine was practically negative, except for a few red cells and pus cells, which were possibly due to traumatism. It was my opinion that a stone was loosened up by this examination.

Another case in point is a case of a patient treated for cystitis. I was told of the case by the family physician, and he was giving the usual treatment for cystitis two or three weeks before he could get her to come to the office, and when she came in the urine was examined and pus cells were present, but tubercle bacilli were not. We catheterized the ureters. From the left kidney we obtained almost pure pus, the smear of which looked like T. B. sputum. There were numerous tubercle bacilli present. I call attention to that because of the fact of overlooking or not finding tubercle bacilli present in the urine in the case of tuberculosis of the kidney. I would not say that was frequent, but this case impressed itself on my mind.

The doctor has mentioned the fact of the phlebolite, and in closing I will tell you a joke on myself in that connection. There was a patient sent to the hospital for operation. She had a small calculus about two inches from the lower end of the ureter, that is, a shadow. Realizing the possibility of its being a phlebolite, I catheterized the ureter. It happened that, in preparing the catheters, the nurse had put them in a carbolic solution instead of bichloride. The catheter was softened a little bit, but I did not think it was injured, and

I catheterized the ureter, and when the catheter passed into the ureter two inches I was unable to pass it any further. I felt quite certain of my diagnosis. On operation I did not find a stone in the ureter, but I found a phlebolite. A subsequent examination of the catheter showed that it was practically broken in two at that point. It was softened by the carbolic solution. I did not notice it when I examined it before, yet the catheter had a flail-joint at that particular point.

Another point that I might mention is the fact that some calculi do not show very well with the *x*-ray; in fact, I do not believe it is possible to produce a technic that will show them, because the weight is practically the same as the body-tissue and we realize that we estimate the depth of the shadow by the specific gravity of the object by the radiograph.

Dr. LaRose (closing the discussion): While I might say, as Dr. Ringo has said, the technic of a complete examination of the urinary tract may appear difficult, yet I venture to say that there is not a man present but what can catheterize the bladder aseptically, obtain a clean specimen of urine, and examine it microscopically for pus, red-blood cells, and tubercle bacilli. The technic of staining the urinary sediment is no more difficult than the ordinary sputum examination. It is, of course, very important to obtain a catheterized specimen, as the urine ordinarily passed may be contaminated with pus and bacteria from the urethra. It sometimes requires the examination of a large number of slides to find tubercle bacilli. I find that in cases where we are examining the bladder urine to determine the presence of tuberculosis, it is a good plan to collect the whole 24-hours urine, allow it to stand for several hours, and then centrifuge the sediment and stain up a number of smears. In this way you may find tubercle bacilli, whereas they may escape you in an ordinary examination.

Another thing: You may have cases of simple cystitis caused by some error in diet, exposure to cold, or other conditions causing irritation. These cases will usually clear up with simple treatment, but if you have an inflamed bladder, with urinary frequency and more or less tenesmus, which does not clear up with ordinary methods, such as irrigations and urinary antiseptics, and pus is present more or less continuously, it is a pretty safe conclusion that you have trouble higher up, and the cystitis is secondary to some graver lesion.

The point that Dr. Ringo made in regard to some stones being invisible with the *x*-ray is a very good one. Occasionally there are good-sized stones composed of pure uric acid which will cast no shadow, but, as a rule, the uric-acid stones contain varying amounts of phosphate crystals, and they may be shown in the *x*-ray plate as faint shadows. There are some which may cause a ureteral obstruction where diagnosis by the radiograph alone would be impossible. It is in these cases of ureteral obstruction that the ureteral bougie and the collargol method have their uses. A ureteral obstruction usually causes dilatation of the ureter above it which can be shown very satisfactorily by the radiograph.

COMMON INFECTIONS THAT ARE ERRONEOUSLY DIAGNOSED AS GRIP*

By C. L. Sherman, M. D.

LUVERNE, MINN.

Since the great epidemic of influenza in 1889-90, there have been outbreaks at irregular intervals, characterized by coryza, sore throat, bronchitis, headache, pain in the back and limbs, and a tendency to prostration and mental depression. These outbreaks usually occur during winter and spring, and, because of their contagious or epidemic character, are called influenza or "grip." However, the diagnosis has not always been satisfactorily established by laboratory methods.

While Pfeiffer and other investigators often found the bacillus influenzæ in all uncomplicated cases during the earlier outbreaks, subsequent reports would indicate that the bacilli are often absent or occasionally found in epidemics that are clinically considered influenza.

Jundell of Stockholm states that during the last seven years he found the influenza bacillus only in about 10 per cent of the cases in which the clinical diagnosis had been made. Ruhemann, in a typical influenza epidemic, found the organism in only 6 per cent of the patients examined. He found the pneumococci and streptococci invariably present.

The influenza bacillus is frequently found in other diseases. Lord found this form of bacteria in 30 per cent of unselected cases of acute and chronic bronchitis, although no epidemic prevailed, and the clinical picture of influenza was absent. The organism has been found in measles and whooping-cough, and, in a few instances, it has been demonstrated to be the cause of pneumonia.

It has also been found as the main etiological factor in diseases extra-pulmonary in character. Pure cultures have been developed from the pus of acute suppurative cholecystitis, in the discharge from abscesses of the extremities and in osteomyelitis.

From a review of medical literature, we find

*Read at the 45th annual meeting of the Minnesota State Medical Association, Minneapolis, October 3 and 4, 1913.

that the influenza bacillus is no more prevalent in the so-called epidemics of influenza than in ordinary bronchitis and other catarrhal infections of the upper air-passages.

The streptococci and the pneumococci are most frequently found, and evidence is being secured to support the suggestion that these organisms are the main cause of many of the localized outbreaks we now call "grip."

Some of the German writers speak of grip streptococcus. Davis and Rosenow studied an epidemic in Chicago, characterized by sudden onset, severe prostration, sore throat, and muscular pains. They demonstrated the exciting agent to be a streptococcus of peculiar characteristics. Similar epidemics have occurred in other cities, and the streptococcus has been found to be the exciting cause.

Dr. Cabot states that in the absence of a well-marked infection of the upper air-passages, with the influenza bacillus predominating in the discharge, there is never any good reason for the diagnosis "grip." He suggests it is time to drop the equivocal use of the word "grip" as a cloak for our ignorance.

During the first four months of this year, there developed a number of cases of influenza in Luverne and vicinity. I therefore attempted to study fourteen cases, as far as my limited facilities and knowledge of bacteriology would permit. Smears from the throat and from the sputum and secondary lesions were examined, and cultures made. Agar-slant smeared with blood was used. In the series of fourteen cases the influenza bacillus was found in only two.

The streptococci were present in all cases, often in pure culture. It occurred to me that the streptococci chains were a little shorter than those developed from pus in suppurative inflammations or from blood-cultures in general infections. In many respects they resembled the organism described by Davis and Rosenow. The pneumococci were present in four cases, and, in one instance, though not suspected previous to the examination, the tubercular bacillus was found. The onset was invariably abrupt. Fever was present in all cases, ranging from 101° to 104° F. Well-marked symptoms of infection of the upper air-passages were constant. All complained more or less of sore throat. Cough, present at the time of the attack or developing within forty-eight hours with more or less expectoration, prevailed in all cases. Twelve had headache. Thirteen complained of pain in the back and limbs. Nervous symptoms were marked in six. Prostration and a feeling of disagreeableness out of proportion to the other symptoms usually prevailed. One case in which the influenza bacillus was found did not complain of headache or pain. In the two cases in which the influenza bacillus was present, the organism was found in smears from sputum and throat, as well as in culture. Two had acute suppuration of the middle ear following the acute attack. Pure cultures of streptococci from the pus were obtained in both cases. One case developed empyema. Pure cultures of streptococci were obtained from the exudate. One developed acute arthritis of both ankles.

I realize that this series of fourteen cases is entirely too limited from which to draw any definite conclusions. However, when considered in connection with a review of the literature and the experience of men who have conducted extensive investigations, I feel justified in venturing the assertion that the majority of localized outbreaks considered by physicians as influenza are not caused by the influenza bacillus and should therefore not be designated as influenza or "grip."

The etiological relationship of the influenza bacillus to any definite pathological condition has not been positively established. The disease cannot be produced experimentally in animals, and it has no pathogenic power for specific reaction. The fact that the bacillus is no more prevalent in epidemics of influenza than in ordinary catarrhal infections would suggest that, possibly, the organisms are simply secondary invaders to other forms of infection.

The streptococci being found in pure culture in the majority of epidemics of so-called "grip," while the influenza bacillus is only occasionally demonstrated, would justify the assumption that the majority of these outbreaks are some form of streptococci infection.

DISCUSSION

Dr. C. C. Pratt (Mankato): I would like to ask Dr. Sherman whether, in those cases in which he demonstrated a pure culture of the streptococcus, the streptococci appeared in chains when he made smears only, as well as in cultures? I have oftentimes obtained a diplococcus that appears to be pneumoncoccic on smearing, but in culture it runs out in chains.

Dr. Sherman (closing): I will simply say, in reply to Dr. Pratt's question, that those streptococci did not occur in chains invariably, but, as I stated in my paper, the chains were shorter than the chains usually found in suppuration inflammations.

OCULAR AND AURAL VERTIGO*

By William R. Murray, M. D.
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MINNEAPOLIS

Vertigo may be defined as the subjective sensation resulting from a disturbance of one or more of the tracts governing the bodily equilibrium.

As we maintain our orientation through a somewhat complicated system of innervation, it follows that a disturbance of one or more of a number of factors may give rise to vertigo. The sensory-nerve paths of orientation are the vestibular, ocular and the nerves of pressure and tension sense from the muscles and joints and from the internal organs; and any factors that cause a disturbance of any one of these centers may produce a disturbance of equilibrium.

In a broad sense all forms of vertigo might be considered as vestibular, due to disturbance of the vestibular nerve or its connecting fibers, as related to the semicircular canals. However, a functionating labyrinth should not be considered as essential to perfect orientation and equilibration. After destruction of one or both labyrinths the patient will regain his faculty of maintaining his equilibrium, due to his being dependent upon the remaining factors concerned in the orientation of the body, such as the visual, tactile, muscular, and arthrodial senses; and by a process of education these special senses assume the function of the labyrinth, and the patient is able to maintain his equilibrium.

The tracts governing the equilibrium of the body may be classified as the vestibulo-ocular, the vestibulo-spinal, and the vestibulo-central. The vestibulo-ocular tract is connected through Deiter's nucleus and the fasciculus longus with the corpora quadrigemina and the ocular muscles. The vestibulo-spinal tract connects with the cord and has to do with the maintenance of muscle-tone necessary for equilibrium. The vestibulo-central tract connects with the higher centres in the cerebellum. Vertigo may be due to irritation or destruction of any one of these tracts. It is my purpose to discuss only those forms of vertigo which are due primarily to abnormal conditions of the eye and ear.

Ocular Vertigo.—As the visual apparatus is so intimately concerned with the proper and automatic orientation of the body with reference to space and to external objects, it is to be expected that certain visual defects or the irritation of certain ocular structures may be the direct cause of an unbalanced condition of the equilibrium, which manifests itself subjectively in the form of vertigo.

In discussing ocular vertigo, the term *vertigo* will be used in a broad sense so as to include those rather indefinite subjective sensations of dizziness, which are not true vertigo. True vertigo is a sensation of subjective or objective rotation. Ocular defects, with the exception of diplopia and some cases of muscular imbalance, are more likely to cause somewhat vague sensations of dizziness, which may be considered as a mild form of vertigo.

Visual impressions are dependent upon the light-transmitting and the light-perceiving structures, and abnormal conditions that interfere with the formation of a clear visual image, in one eye, may give rise to vertigo. Slight opacities in the light-transmitting structures of the eye may cause dizziness by causing a blurred image in one eye. Over-stimulation or prolonged stimulation of the retina, a light-perceiving structure, may be accompanied by vertigo, and this is sometimes present in connection with an inflammation of the retina and sometimes follows exposure of the eyes to intense light or to rapidly moving objects or moving pictures. Sudden paralysis of accommodation due to a pathological lesion, may cause vertigo; and paralysis of accommodation due to use of a mydriatic may do the same, especially if the patient has considerable latent hyperopia or astigmatism.

Ocular vertigo is most frequently due to the following causes: (1) errors of refraction; (2) muscular imbalance, or heterophoria; (3) paralysis of an extra-ocular muscle.

Vertigo due to an error of refraction is likely to be described by the patient as an indefinite or vague form of dizziness, usually of mild degree, though it may be severe and accompanied by nausea and vomiting. It usually follows prolonged use of the eyes for near work or occurs suddenly when the patient raises the eyes from a book and looks at more distant objects. It may be the only symptom of which the patient complains, but more generally it is accompanied or followed by other symptoms of discomfort,

*Read before the Kandiyohi-Swift and Crow River Valley Medical Societies, August 7, 1913.

such as headache. It should also be remembered that attacks of dizziness in patients who have passed the age of 40 years, may be due to the onset of presbyopia; and in these cases it frequently happens that dizziness is the only symptom of which the patient complains. There is no particular form or amount of refractive error that is most likely to cause ocular vertigo. Much depends upon the individual, such as his temperament, age, occupation, physical condition, etc. Generally speaking, it is the low or moderate degrees of astigmatism that most frequently give rise to vertigo. If a patient has a very large amount of hyperopia or a high degree of astigmatism, the amount of muscular effort necessary to overcome this high refractive error is so great that he makes no attempt to overcome it, and the result is defective vision without much ocular strain. Hence the person is likely to complain of defective vision rather than subjective asthenopic symptoms. If the error of refraction is a low or moderate amount of hyperopia or astigmatism, the patient, by a constant, excessive action of the ciliary muscle, is able to overcome the error, and maintain a clear and distinct visual image. These cases do not complain of defective vision, but the constant and excessive muscular effort gives rise to subjective symptoms, quite characteristic of "eyestrain," and in such cases vertigo may be present. Such low or moderate refractive errors are likely to be overlooked or improperly corrected, without the use of a cycloplegic.

Ocular vertigo due to heterophoria is the result of the inability of the patient to maintain single binocular vision without an excessive strain on the extra-ocular muscles; and this unconscious and continuous effort to prevent double vision is likely to cause various subjective symptoms, one of which may be vertigo. Patients with an unbalanced condition of the extra-ocular muscles are likely to complain of vertigo when riding on the cars, when viewing moving objects, and when attempting to do close work. The form of heterophoria which is likely to cause the most severe form of dizziness or vertigo is hyperphoria, or an unbalanced condition of the vertical muscles of the eyes.

Ocular vertigo due to a paralysis of an extra-ocular muscle furnishes the most severe type of ocular vertigo, and is due to the actual presence of double images. This confusion vertigo is generally overcome by the patient, who soon learns not to turn the eyes in the direction of the paralyzed muscle or he covers one eye.

Ocular vertigo, then, may be said to be a confusion vertigo, due to inability to obtain a clear image on corresponding portions of the retina without excessive strain upon the intra-ocular muscles, or to an abnormal effort to prevent diplopia, or to inability to obtain binocular vision.

Ocular defects causing vertigo may be accompanied by a nystagmus, but the ocular nystagmus is undulatory in character, is not increased by turning the eyes in any particular direction, and is not composed of a rapid and a slow excursion of the eyeball, but the excursion of the eyeball in one direction is equal to that in the other, both in extent and rapidity,—a distinctly different type of nystagmus from that present in labyrinthine involvement.

In diagnosing a vertigo of ocular origin, the history of the patient is of great importance. Vertigo occurring after the use of the eyes for close work, or on suddenly looking up from the page of the book and looking at more distant objects, or when riding on the cars, or after "shopping," is very suggestive of an ocular origin, and ocular vertigo is usually relieved by closing the eyes, by lying down, or by remaining in a dark room.

Aural Vertigo.—In contrast with the somewhat indefinite objective signs present in cases of ocular vertigo, we find in cases of vertigo accompanying labyrinthine disturbances that there are definite clinical signs present upon which a diagnosis can be made, and these associated objective phenomena are *nystagmus, vertigo, and disturbances of equilibrium,* which are of a definite and characteristic type.

Nystagmus.—The semicircular canals, whose function is the maintaining of the bodily equilibrium, are three in number, the horizontal and the anterior and the posterior vertical. They are situated within the labyrinth and are nearly at right angles to each other. One extremity of each canal is larger than the other extremity, and this larger end is termed the *ampulla.* Within the membranous portion of the semicircular canals is the endolymph, and also within the membranous portions of the vestibule and semicircular canals are the end-organs of the vestibular portion of the auditory nerve. These end-organs of the vestibular portion of the auditory nerve are distributed as hair cells in the utricule and saccule of the vestibule and in the ampullæ of the semicircular canals. It is the stimulation

of these end organs of the vestibular nerve that produce nystagmus and also vertigo.

The auditory nerve has its origin in the medulla and consists of two portions, one, the cochleal, passes to the cochlea and is the nerve for the special sense of hearing. The other portion passes from the chief nucleus and from Deiter's nucleus to the vestibule and the ampullar ends of the semicircular canals. Deiter's nucleus also sends fibers to the nucleus of the motor nerves of the muscles of the eyes and to the motor cells in the anterior horn of the spinal cord. Hence, irritation of the end organs of the vestibular nerve in the ampullar ends of the semicircular canals will transmit a stimulus along the vestibular portion of the nerve to its center in the medulla, and thence from Deiter's area to the oculo-motor centers, causing a nystagmus, and also to the motor neurons of the spinal cord, causing a disturbance of equilibrium. Those fibers which pass to the cerebral cortex also give the sensation of apparent rotation of objects.

The nystagmus caused by vestibular irritation has the following peculiarities: First, it is a so-called rhythmic nystagmus, in which it is possible to distinguish a slow and a rapid movement, and the direction of the nystagmus is determined by the direction of the rapid movement of the eye. Second, the nystagmus always becomes more manifest when the eyes are voluntarily turned in the direction of the rapid movement of the eye, and it becomes weakened or suppressed when the eyes are turned in the direction of the slow movement.

This characteristic type of nystagmus, together with vertigo and ataxia, may be elicited by functional tests of the normal ear, and is always present during the acute stage of a labyrinthine irritation.

Vertigo.—The vertigo of a labyrinthine irritation is also characteristic in type. It is always a rotary vertigo; that is, the patient has the sensation either of his body rotating in a certain direction or of the rotation about him of surrounding objects. The former is termed *subjective* vertigo and the latter *objective* vertigo. The vertigo of vestibular irritation always continues when the eyes are closed; that is, the patient has a subjective sensation of turning, and this vertigo is more pronounced than when the eyes are open. Vestibular vertigo always shows a constant relation to the nystagmus present. It is always accompanied by a nystagmus, composed of a slow and a quick excursion of the eyeball. The vertigo is also increased by turning the eyes in the direction of the rapid movement and lessened by turning the eyes in the direction of the slower movement of the nystagmus, and any factor that increases the nystagmus will also simultaneously increase the vertigo. The apparent movement of objects is always in the plane of the nystagmus. If the patient has a vertical nystagmus, objects will appear to move in the vertical plane when the patient is in the upright position. If the patient is in the reclining position and looking upward, the movement of objects will appear to be in the horizontal plane.

Disturbance of Equilibrium.—Vestibular vertigo is also attended by disturbance of equilibrium, which is characteristic in type and which also shows a constant relationship to the nystagmus. This disturbance of equilibrium has the following characteristics. The patient always has a tendency to fall in the direction opposite to that of the quick movement of the nystagmus, and a change in the position of the patient's head will alter the direction in which he tends to fall; i. e., if the patient has a nystagmus to the right, with the head in the upright position and looking forward, he will tend to fall to the left, if he turns his head toward his right shoulder he will tend to fall forwards, and if he turns his head to the left he will have a tendency to fall backwards. This relationship between the nystagmus, vertigo, and direction of falling, is constant, and when the nystagmus subsides or disappears the vertigo and loss of equilibrium also subside or disappear.

Labyrinthine vertigo is generally understood as being a vertigo due to irritation of the end organs of the vestibular nerve, and is termed vertigo of vestibular irritation. There is, however, another form of vestibular vertigo which follows destruction of the labyrinth and is termed the vertigo of vestibular paralysis. This form of vertigo follows destruction of the end organs of the vestibular nerve and is due to the unbalanced action of the opposite labyrinth and to imperfect orientation. This form of vertigo somewhat rapidly subsides as the patient learns to accustom himself to a single functionating labyrinth. It should be remembered that sudden attacks of vertigo may occur for a considerable period after the patient has apparently recovered from his vertigo following vestibular paralysis. These attacks are due to the patient's not yet having acquired perfect orientation; and

some sudden physical exertion, to which he has not accustomed himself, may cause vertigo. The patient should be warned of this, as such sudden attacks might subject him to great danger from accidents.

All forms of aural vertigo should properly be considered as labyrinthine vertigo, since the direct cause of the vertigo is some interference with the labyrinthine function. This interference with the function of the labyrinth, however, may be due indirectly to abnormal conditions without the labyrinth; hence, for clinical and therapeutic reasons, we can classify aural vertigo as *extralabyrinth* and *intralabyrinth*. Among the abnormal aural conditions external to the labyrinth which may be the cause of an aural vertigo, we find that, in occasional cases, a plug of cerumen may, by direct pressure against the membrana tympani, cause an increased pressure within the labyrinth and thus give rise to vertigo. Sudden closure of the eustachian tubes may cause vertigo, by suddenly interfering with the entrance of air to the tympanum, resulting in absorption of the air within the middle ear, and a consequent drawing inward of the membrana tympani and the foot-plate of the stapes at its attachment to the wall of the internal ear, and thus disturbing intralabyrinthine pressure. Such chronic forms of deafness as otosclerosis may be accompanied by dizziness, due to fixation of the footplate of the stapes at the oval window or to involvement of other portions of the labyrinthine capsule. Mechanical interference with the attachment of the stapes will cause vertigo which is often severe. This sometimes occurs after removal of the ossicles in a radical mastoid operation or after an ossiculectomy, if the stapes is disturbed. This vertigo subsides unless infection of the labyrinth occurs.

Occasionally an injury to the membrana tympani will be accompanied or followed by vertigo, due to interference with the ossicular attachments and the transmitting of this disturbance to the labyrinth. It is in connection with chronic purulent diseases of the middle ear that recurring attacks of dizziness become most significant, as these attacks of vertigo, usually mild in character, are an indication that the purulent middle-ear involvement is extending to and involving the labyrinth and are danger signals which, if neglected, will probably result in purulent labyrinthitis and intracranial complications. In these cases an immediate radical mastoid operation is indicated.

True labyrinthine vertigo, where the source of irritation is within the labyrinth, is present in the different forms of labyrinthine involvement. It is generally referred to as the vertigo of vestibular irritation, and is due to irritation of the end organs of the vestibular nerve. It may be present in hyperemia of the labyrinth, anemia of the labyrinth, hemorrhage into the labyrinth (Menière's disease), arteriosclerosis of the labyrinthine vessels, acute labyrinthitis, injuries to the labyrinth, and, occasionally, in certain forms of occupational deafness where the internal ear is involved.

SUMMARY

Vertigo due to ocular defects may be termed a confusion vertigo, and does not present a definite characteristic type, and is not accompanied by associated phenomena possessing definite characteristics. While the history of the case is of great importance in diagnosing an ocular vertigo, many cases will present such a vague and indefinite history that the physician may be misled into excluding the eyes as the cause of the vertigo, unless a careful ocular examination be made. The ocular defects most likely to cause vertigo are the low degrees of astigmatism and muscular imbalance; and a careful examination of the eyes, under the influence of a reliable cycloplegic, is necessary to relieve the vertigo.

2. Aural vertigo is a rotary vertigo and is always accompanied by a nystagmus which presents a rapid and slow movement of the eyeballs, and the vertigo is increased by turning the eyes in the direction of the rapid movement.

3. Aural vertigo is accompanied by some disturbance of equilibrium and the patient tends to fall in the direction opposite to that of the rapid movement of the nystagmus, and the direction in which the patient tends to fall is altered by a change in position of the patient's head.

4. Aural vertigo may also follow destruction of the labyrinth, in which case it is due to the unbalanced action of the opposite labyrinth, resulting in defective orientation. This form of labyrinthine vertigo subsides as the patient learns to accustom himself to a single functionating labyrinth.

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AMERICAN COLLEGE OF SURGEONS

At a meeting of the Congress of Surgeons in 1912 a committee of ten surgeons was appointed by the Congress to found a new organization, the American College of Surgeons.

This committee of ten was composed of eminent surgeons who invited five hundred persons engaged in the practice of surgery throughout the country to become the founders of the so-called college. Each large university city on the continent was visited by a member of the committee, and a group of men met and selected candidates.

The object of the College is laudable in many respects. The first aim is to elevate the standard of surgery and to formulate a plan which will indicate to the public and to the profession that the surgeon possessing a fellowship in the College is especially qualified to practice surgery as a specialty.

For the purposes of organization the college is graded as follows: Class A consists of the appointed founders. Class B will consist of the members of certain national special societies and of one hundred each from certain other national special societies nominated by accredited committees from these societies. Class C will consist of surgeons of prominence of five years in the practice of a surgical specialty, who, in the opinion of the committee on credentials, are eligible to fellowship in the College without formal examination. Class D will be made up of those selected by examination.

The initiation fee is $25.00, with annual dues of $5.00.

The founding of the new college took place in Chicago Nov. 11th and 12th, and degrees were conferred by the new president, Dr. J. M. T. Finney, of Baltimore, on 1,050 surgeons. The following are the members from Minnesota:

Minneapolis: A. W. Abbott, Emil S. Geist, H. H. Kimball, Arthur A. Law, J. Warren Little, Jennings C. Litzenberg, Arthur T. Mann, John H. Rishmiller, Gustav Schwyzer, Charles N. Spratt, Eugene S. Strout, H. B. Sweetser, Franklin R. Wright, James E. Moore, Horace Newhart, Frank E. Todd, and W. E. Rochford.

St. Paul: Alexander R. Colvin, W. A. Dennis, Robert O. Earl, Arthur J. Gillette, Archibald MacLaren, Harry P. Ritchie, John T. Rogers, John L. Rothrock, and Arnold Schwyzer.

Rochester: William J. Mayo, Charles H. Mayo, E. H. Beckman, Melvin Starkey Henderson, and E. S. Judd.

Brainerd: Walter Courtney.

Mankato: John H. James.

Duluth: William H. Magie.

As might have been expected, a storm and roar of protest, criticism, bitterness and disappointment has been raised by the unfavored who claim that the College is designed to be a replica of the Royal College of Surgeons in England and will be frowned upon by many righteous men.

No one can complain of the selection from Minnesota, except that it fails to embrace men who stand high in the profession and are conspicuous by their absence from the list; neither does it embrace well-known men who are members and workers in many well-equipped hospitals. Perhaps after the membership has been raised to 3,000 or 4,000, or more, there may be a better feeling, but how many of these men will submit gracefully to a membership in the various classes is a question that cannot be answered now.

The organization has been attacked as a close corporation with selfish aims and an attempt to keep worthy men from its ranks. The scheme appeals to some surgeons, but will it appeal to the public? It seems a very dangerous procedure to classify men into groups who are supposed to possess special qualifications and leave the public infer that all others are inferior.

If the sole aim of the new College was intended to suppress the fee-splitter no one would object,

but to attempt to elevate the standard of surgery without closely and carefully considering the individual is of questionable value. It is said that wire-pulling, button-holing, and politics were in evidence at the Chicago meeting and that not a few were admitted by clinging to someone's coat-tail.

The Congress did one thing that was commendable: It prevented the publication of the usual half-page or full-page portraits and advertisements of prominent men which commonly are found in the daily press at such gatherings.

To those who are not in, may they have peace —and hope!

ANTI-TYPHOID VACCINE

The *Minneapolis Tribune*, of Sunday, Nov. 16th, had a double-page article by Mr. T. J. Malone on the use of vaccine as a preventive of typhoid.

The article is a brilliant résumé of the work already done in various parts of the country, but particularly of the work done and contemplated by the Minnesota State Board of Health.

Maps showing the places in Minnesota investigated in fifteen months where epidemics of typhoid occurred, as well as a map of hypochlorite plants located in Minnesota, were displayed.

About three thousand people in the state have already been immunized, and the work is steadily progressing. It is expected that the smaller hospitals of the state and also the large state institutions will insist that all employees shall be immunized. There is no reason why all officers, nurses, and others in all hospitals should not be vaccinated against typhoid. The discomfort is practically nothing, and the prevention is practically sure.

During an epidemic of hog cholera this fall, farmers and bankers were crying for protection against a possible business loss, but the average farmer and banker does not hold the value of a human life to be even one-half the value of the life of a hog. A hog is worth about $20, and the value of a human life is estimated at $7,500. It seems sad to know that a legislative body will appropriate more money to protect its hogs than its humans. The loss of 100,000 hogs, valued at $1,000,000, occurred this year in Minnesota. Two hundred and thirty-three persons died of typhoid in Minnesota in 1912, with a valuation, according to the new workman's compensation act, of $1,747,500 in deaths alone, to say nothing of 2,300 cases of typhoid that did not die. The loss of time, loss in wages, and expense of treatment would add $300,000 to the totals. The State Board of Health has about $67,000 a year to fight all communicable diseases of which typhoid is only a fraction. Why not start a legislative campaign for humans first and hogs afterward? Both animals would benefit enormously.

Typhoid can be stamped out with a hypodermic syringe filled with a non-irritating and safe vaccine.

Hog cholera, a similar disease, can be controlled by the same means, but the serum must be as carefully prepared as typhoid vaccine. The administration should be as carefully done as on the human.

Will the legislature see that the man is superior to the hog and make its appropriations with due care and respect?

THE PURITY CONGRESS

A conglomeration of social problems constituted the basis for the Purity Congress which met in Minneapolis early last month. The editor has forgotten the place assigned for the next meeting, but wherever it is he extends his sympathies to the unsuspecting public who are destined to bear the burden.

Some of the work of the Congress was beyond criticism, but if the so-called sex-problem section would have its meeting in mid-ocean on a ship without a wireless apparatus, the Congress and the world at large would benefit thereby.

The slush that was talked and published relative to the sexes and vices would make a doctors' convention blush if they were forced to hear it.

The meetings were attended by many sorts of people, both old and young, and both predominated when sensual subjects were so blatantly heralded. It seems remarkable and strange that a subject of this kind will attract so large an attendance of the curious, timid, and over-prudently religious; yet when one knows of the books innumerable that are written on the sex problem, perhaps it is no wonder that the morbid mind seeks more morbid mental food. To think that innocent young people were permitted to hear what should have been said to parents behind closed doors, is disgraceful, and substantiates the truth of what Alfred Russell Wallace said only a short time before his death at 90 years of age. His long experience and observation over many lands, and his contemporary work with Charles Darwin, convinced

him that we as a nation have not improved our intellect or our morals from the time of the ancient Egyptians. Wallace contended that "physical evolution was not sufficient to explain the whole of the human mind, and he believed that somewhere in the process the brain of man had been inspired by the Greater Mind, the Universal Mind, or by a Power other than physical, at least."

Why, then, is it so necessary to publicly proclaim vice and thus arouse the curious, unstable, and weak-minded to investigate such problems in order to experience sensations that might best be left alone?

When we stop to think of the numberless would-be reformers who have an inherently narrow viewpoint and who, through inability to see more than one-fourth of a question at a time, are forcing their ill-digested opinions and advice upon us, one might justly accuse us of being a race of fools. As a matter of fact there are more fools to the relative population than there were centuries ago, when silly literary publications were necessarily restricted.

The only way to approach the vice problem is to educate the parents in the fundamental principles of morality and Christianity, and they, in turn, will transmit a moral stamina to their children. To attempt to legislate morals into people is a waste of time and energy. It would be far safer to permit the people and the individual to settle their own moral standards than to force them to capitulate to the ideas of a dreamer who dreams that he is dreaming a dream.

If the parent sets a good example and shows a personal and serious interest in his offspring, the moral standard will improve at once save in the few who are physically and chemically destined to decline. For this latter class the state must provide institutions for detention and care, as well as exercise supervision over marriages of the unfit.

The vice problem and the sex problem have become nauseous, and it is time that the attention of the young was turned to occupational pursuits that would give them healthier food for thought.

MALPRACTICE SUITS

The Minnesota legislature at its last meeting passed a Workman's Compensation Act that lifts corporations out of the domain of the damage-suit lawyer.

As a result of this measure, and because of relations to interstate commerce, the railroads are now being bombarded with personal injury litigation. The attorneys tell us that physicians, and particularly surgeons, will be attacked, as never before, by unscrupulous shysters who think they can wring a fee and a settlement out of the physician's purse. The surgeon is more liable to attack than the physician on account of the delicacy of his work, but let no man think himself safe even though he limits his work to specialties other than surgery. The internalist who refers a case to a surgeon and who is associated with him in the management of the diseased person, is equally liable in the eyes of the law, and many attorneys will take advantage of this situation.

The remedy lies in the exercise of care in what one says or does, while the fullest explanation in the presence of witnesses is a very strong weapon of defense. Another remedy lies in insurance against surgical or medical contingencies. If one relies solely upon his State Association defense, he should be sure that the facts in any case are clearly gathered and presented. If one relies upon an insurance company, he must look well to his policy, see what it covers, and how well he is protected. It is well to consult one's attorney before binding himself to a contract of insurance. He may want a few more protective lines added.

In the event of a malpractice suit it is very comforting to know that one is protected by his State Association or by other insurance policy. It will save much time and more money if one is forehanded.

As a further precaution one should keep the notes on his cases, dated and clearly stated, and have an associate in important cases upon whom one can rely.

To show how far litigants may go, a suit has recently been started, based on the removal of tonsils, which involves a surgeon and an internalist. What would a lawyer claim if a surgeon removed a spleen?

THE PURE FOOD LAW AND BREAKFAST FOODS

A number of suits recently brought against Minnesota grocers for selling breakfast foods containing insects and being otherwise unfit for consumption, calls our attention to a really serious matter. It is well known that all ground cereals contain the microscopic eggs of what,

we believe, is called the Mediterranean weevil, and that their eggs hatch out in the package during the late summer months, rendering the cereal unfit for consumption.

In the suits thus far brought, the courts have imposed the minimum fine ($50), recognizing the fact that the retailer may not be responsible for the condition, but not overlooking the fact that the condition is serious and must be corrected. The grocers of the state, through their organization, have begun a campaign for the sanitary handling of all foodstuffs.

If the hatching out of the weevil is due, in a measure, to unsanitary conditions, or is hastened thereby, the grocer should be held to a strict accountability for the condition of his premises; if, on the other hand, the weevil egg hatches out under any and all conditions, means for its eradication should be found by the scientists.

We understand it is claimed by one of the local cereal companies that they have a process for the absolute prevention of the trouble. We believe that rust has been largely banished from our grain fields by the treatment of the seed, and possibly the weevil can be controlled in the same way, either before or after the grain has been milled.

TO THE MINNESOTA SECRETARIES

It is very important that the secretaries of the county societies do not overlook the fact that the Association year ends December 31st, and that the rosters of their societies must be in the hands of the State Secretary on that date.

It is equally important that all physicians who wish to retain the benefits of the medical defense feature of the Association and to continue to receive THE JOURNAL-LANCET shall pay their dues at once.

REPORTS OF SOCIETIES

MINNESOTA ACADEMY OF MEDICINE

The regular monthly meeting of the Academy was held at the Town and Country Club on Nov. 5th. There were thirty members and two guests present, Dr. C. M. Jackson, introduced by Dr. Lee, and Dr. W. F. O'Connor, of Ladysmith, Wis., introduced by Dr. Cross.

Dr. Charles D. Freeman, of St. Paul, and Dr. Henry L. Ulrich, of Minneapolis, were elected to membership.

The president urged upon the members the desirability of more case-reports and the presentation of pathological specimens. He thought that the reading of two papers was usually hardly enough matter for one evening's work, and that a few minutes each month could well be devoted to the brief annotation of interesting cases.

A report was made by Dr. Gilfillan of the postmortem on a case of septic thrombosis of the lateral sinus, with pulmonary abscesses rupturing into pleural cavities, producing pneumothorax on one side and empyema on the other.

Dr. Williams reported a similar case with happier outcome. The sinuses were opened and drained. Some days later an abscess formed in the ankle-joint, and still later there was a large collection of pus in the gluteal region. The patient finally got well, but still depends on a crutch in walking.

Dr. Mann related the clinical history of a similar distribution of infection from a central focus. In his case an abscess formed in the lung, which ruptured into the bronchus, the patient coughing up at least a pint of pus.

Dr. Little told of a woman who suffered from a chorio-epithelioma of the uterus, in which the hemorrhage was so profuse that each time he attempted to make an examination he was obliged to desist and pack with gauze. He finally succeeded in removing a section for examination, and afterwards removed the uterus.

Another case was reported by Dr. Gilfillan, one of typhoid with an embolus developing in the brachial artery.

Dr. Ramsey had a child recently under his care at the City Hospital that had been shot through the abdominal wall by a 22-caliber rifle bullet. The shooting was accidental; the child recovered.

A communication to the effect that his health would not admit of his attending any more meetings of the Academy, was read from Dr. J. Clark Stewart.

It was moved by Dr. Mann, and seconded by Dr. Davis, that Dr. Stewart be made a member emeritus and his name placed on the honorary list. The motion was unanimously carried. Dr. Davis moved further that the secretary be instructed to write a letter to Dr. Stewart, setting forth the deep appreciation the Academy felt for the splendid work he had done for the Academy and also giving expression to our sympathy in his failing health. This also carried unanimously. The following is a copy of the letter written

by the secretary to Dr. Stewart a day or two later:

Secretary's Office,
Minnesota Academy of Medicine.
November 9, 1913.

J. Clark Stewart, M. D.,
Minneapolis.

Dear Doctor Stewart:

The Minnesota Academy of Medicine, at its last regular meeting, voted to place your name on the honorary list of its members.

The Secretary has been instructed to say to you, along with the notification of your election, that we sincerely regret your ill health. It was the wish of the one who proposed such letter, and his suggestion was heartily endorsed by those present, that some expression of appreciation be made you for the many years of earnest work, good fellowship, and high order of attainment that you have brought to this organization.

It is hoped you will feel able to meet with us many times more. Sincerely yours,

Fred E. Leavitt, Secretary.

The two papers of the evening were read by Dr. J. T. Christison and Dr. Frank C. Todd. The former paper, "Scurvy in Children," was discussed by Doctors Ramsey, Roberts and Staples. It was the opinion of Dr. Ramsey that scurvy is much more common than generally supposed. The diagnosis was often overlooked or confused with rickets. Indeed, the two diseases had much in common. He brought one case to mind of a child who had an erupting tooth lanced that bled alarmingly. The hemorrhage was so persistent that he was obliged to make pressure on the surrounding parts in order to control it. Dr. Roberts said it was remarkable how much the disease had increased of late years. As early as 1880 and 1890, cases of infantile scurvy began to be seen. He had had a great deal of experience with it in his own family. In three instances physicians and surgeons were called in consultation, but none of them were able to diagnose the disease. Finally, suspecting it might be scurvy, he gave the children orange juice and within a short time they were well. He wrote a paper on the subject of infantile scurvy a little later in which he advocated the giving of orange juice to babies fed on artificial foods. This was taken up by the manufacturers of Mellin's Food and the advice incorporated in their literature. It is still recommended. For the last eight or ten years he has seen very few cases of the disease.

Speaking of hemorrhage in scurvy, he related the case of a child he once saw whose gums bled so profusely that a large clot hung out of its mouth, filling the mouth so full of clot that he could not see its teeth. A little orange juice cured the ailment in a week. He attributed the infrequency of the disease to the greater intelligence exhibited in the artificial feeding of infants today as compared with twenty or thirty years ago.

Dr. Staples said the disease might also be confused with syphilis and infantile paralysis. Only last winter he saw a young child sick with scurvy that was thought to have one of these affections. Its mother was about to take it away to a warmer climate in hopes that it would get well. Given orange juice, it recovered in a week.

Dr. Todd read a paper on "The Newer Operations for Glaucoma." His discourse was illustrated by numerous diagrams and the exhibition of several specially devised instruments used in the operations referred to in his paper.

Dr. Williams, in discussing the paper, referred to the newer methods of treating glaucoma surgically as epoch-making operations.

Thirty members were in attendance.

Fred E. Leavitt, M. D., Secretary.

MISCELLANY

DEATHS IN MINNESOTA FROM PREVENTABLE CAUSES

	1910.	1911.	1912.
Actinomycosis	0	3	2
Bronchitis	230	272	289
Cancer	1,391	1,425	1,473
Chickenpox	0	2	1
Diarrheal diseases of children under five years	1,799	1,092	852
Diphtheria	566	336	173
Epidemic cerebrospinal meningitis	20	44	48
Glanders	0	1	0
Influenza	75	151	85
Measles	263	112	20
Pneumonia	1,933	2,221	1,742
Poliomyelitis	201	59	23
Puerperal sepsis	113	148	100
Rabies	0	0	2
Scarlet fever	284	190	104
Smallpox	7	7	4
Tetanus	34	24	32
Tuberculosis	2,258	2,456	2,286
Typhoid fever	688	294	233
Whooping cough	172	180	221
Accidents	1,785	1,733	1,733
Total preventable group	11,819	10,750	9,423
Deaths from all other causes except stillbirths	9,615	9,842	10,850
All deaths except stillbirths	21,434	20,592	20,273
Stillbirths	1,373	1,503	1,541
Total deaths	22,807	22,095	22,814

BOOK NOTICES

LABORATORY METHODS, WITH SPECIAL REFERENCE TO THE NEEDS OF THE GENERAL PRACTITIONER. By B. G. R. Williams, M. D., and E. G. C. Williams, M. D. Second edition, cloth, $2.50. C. V. Mosby Company, St. Louis, 1913.

This volume is especially designed by the authors for "the general practitioner who desires to make, easily and inexpensively, examinations on which he may depend." To the physician whose medical education included but little clinical laboratory work the book will be of service, indicating the possibilities and limitations of tests which he may perform.

Considerable stress has rightly been laid on the various sources of error which may arise, points which have been neglected in many larger volumes.

As a manual for the actual performance of laboratory tests the work is unsatisfactory. The large number of subjects covered in small compass, including milk and water analysis, tissue diagnosis, and autopsy technic, prevents sufficient treatment of individual subjects. —JOHNSON.

TEXT-BOOK OF DISEASES OF THE NOSE, THROAT AND EAR, for the use of students and general practitioners. By Francis R. Packard, M. D. Professor of Diseases of the Nose and Throat in the Philadelphia Polyclinic Hospital and College for graduates in medicine, etc. Second edition with 145 illustrations. Published by J. B. Lippincott & Co., 1913. Price, $3.50.

The book is made up of 359 pages, of which 178 are devoted to the diseases of the nose, 72 to the throat, and 150 pages to the ear. There is a special chapter on diseases of the eye rsulting from th pathological conditions in the nose and accessory sinuses.

The section on tonsils and adenoids has been rewritten with the addition and description of the processes employed in direct tracheobronchoscopy and esophagoscopy.

The author's original idea to furnish a practical hand-book for post-graduate students is well carried oue. There are many original, excellent illustrations. —WOOD.

NEWS ITEMS

Dr. R. F. Lynch, of Minneapolis, will locate at Kasson.

Dr. Edward P. Ryan has moved from Stillwater to Detroit.

Dr. C. F. Warner, of St. Paul, has moved to Los Angeles, Calif.

Dr. Allan Gage has moved from Montrose, S. D., to Peterson, Iowa.

Dr. C. R. Andrews, of Westport, S. D., has moved to Newark, S. D.

Dr. J. C. Alexander has moved from Tower City, N. D., to Hope, N. D.

The Northwestern Hospital of Minneapolis graduated a class of ten nurses last month.

Dr. D. M. O'Donnell, of Huron, S. D., is seeking a new location and may locate in Minneapolis.

The new Parkview Hospital at Jamestown, N. D., was formally opened with a reception last month.

Dr. Crossette, of Chokio, has bought the practice of Dr. McCann, formerly his competitor at that place.

The campaign to raise $50,000 for the new St. Joseph's hospital of Minot, N. D., is progressing rapidly.

Dr. W. J. Richardson, of Fairmont, has recovered sufficiently from his recent illness to resume his practice.

Dr. Gustav Seidler, of Shakopee, was killed by a railroad train on Nov. 19th. Dr. Seidler was forty years of age.

Dr. Clyde W. Jump, of Bozeman, Mont., was married at Helena, November 5th, to Miss Belle Pierce, of Townsend, Mont.

Dr. C. P. Gibson of Redwood Falls and vicinity for the past twenty-five years, has sold his practice and will move to a stock farm near Milaca.

Dr. C. B. Furness, of Mandan, N. D., has sold his practice to Dr. C. C. Hickman, of Chicago. Dr. Hickman is a graduate of Rush and also of the University of Nebraska.

Dr. C. E. Spicer, of Litchville, N. D., has gone to Philadelphia, for post-graduate study until after Christmas, when he will return and resume his practice. Dr. Stixrud has charge of his practice.

The American Journal of Surgery will devote its January issue to the discussion of fractures and their treatment. A dozen of the leading surgeons of America will have papers in this issue.

Miss C. Russel Sprake, superintendent of the Otter Tail County Tuberculosis Sanitarium, and Dr. Bosworth, Medical Inspector of Sanitariums of the state, were married in St. Paul on November 4th.

Dr. A. E. Spalding, of Luverne, Minn., President of the State Medical Association, was elected president of the Rock Island Railway Surgeons' Association at the annual meeting held in Chicago.

Dr. E. E. Holman, of Pine River, was married in St. Paul on November 28th, to Miss Mary E. Corey, of Terre Haute, Ind. Dr. Holman and Dr. Bremken rented a residence and fitted it up for a hospital.

Dr. H. M. Bracken, secretary of the Minnesota State Board of Health, was unanimously elected president of the American School Hygiene Association at its meeting held last month in Buffalo, N. Y.

Dr. A. V. Garlock, who recently finished a course in eye, ear, nose, and throat work at the Chicago Polyclinic, has located at Bemidji, and after January 1st will confine his practice to the above line of work.

Dr. Thomas Lowe, of Pipestone, was elected President of the Southwestern Minnesota Medical Society at the 25th annual meeting held at Worthington. The next meeting will be held at Pipestone in May, 1914.

The Stearns and Benton County Medical Societies met in St. Cloud November 20th. Papers were read by Dr. P. C. Pilon, Paynesville; Dr. Frank S. Bissell, of Minneapolis; and Dr. J. P. McDowell, of Sauk Rapids.

Dr. Russell F. Goodwin, of Minneapolis, died last month as the result of injuries received when he was hit by an automobile on October 13th. He was a graduate of Rush and had practiced in Minneapolis for thirty-five years.

Dean Lyon, of the College of Medicine of the University of Minnesota, has a duplicate of the moving-picture film recently made in Europe, showing the circulation of the blood in an excised rabbit's heart and in the heart of an embryo chicken.

The Black Hills (S. D.) Medical Association held its annual meeting last month. The following were elected officers: President, Dr. F. E. Ashcroft, Deadwood; vice-president, Dr. T. W. Moffatt, Deadwood; secretary-treasurer, Dr. F. W. Minty, Rapid City.

Sir Arbuthnot Lane, Sir Rickman Godlee, and Dr. Herbert J. Patterson, three of England's most distinguished surgeons, with their wives, visited the Mayo Clinic last month, spending several days. The surgeons gave addresses before the "Surgeons' Club."

As no official list of the men who received fellowships in the American College of Surgeons at its Chicago meeting last month is obtainable, we shall refrain from publishing the names of the Northwestern men on the list until it can be done in full and without error.

Dr. T. J. Eltun, of Velva, N. D., died on Nov. 6th from tuberculosis. The remains were shipped to Sacred Heart, Minn., for burial. Dr. Eltum was but recently married in Minnesota to Miss Clara Anderson, who as a nurse had worked with him for many years.

Dr. and Mrs. J. S. Davies and little daughter, of Granville, N. D., sailed on the 15th from New York and will visit the doctor's mother at Pontypridd, England, and will then go to Vienna, where the doctor will spend the next two years specializing in one of the large medical colleges.

The establishment of a social service department at the Minneapolis City Hospital is under consideration by the Board of Charities and Correction. The financial condition of the family of every patient brought to the hospital will be investigated, and the family given assistance if necessary.

Dr. E. F. Reamer, of Mitchell, S. D., has sold his practice of the eye, ear, nose, and throat to Dr. R. A. Kelly, recently of Chicago, and after a month or two spent in eastern hospitals he will resume work at Salem, Oregon, in the same line and also look after his large fruit ranch located near there.

A new modern hospital, erected at the cost of $50,000, has been opened at Jamestown, N. D. This hospital was constructed through the efforts of local physicians, with Dr. W. A. Garish as president of the Parkview Hospital and Sanitarium Association, the holding corporation. Miss Maud Sides has been elected superintendent.

Dr. C. P. Farnsworth, founder of the Chamberlain Sanitarium, Chamberlain, S. D., and for the past six years manager, has sold the hospital to A. C. Whitbeck, president of the national bank of that city. Dr. H. W. Barbour, of Edgeley, N. D., has been selected as head surgeon. Dr. Farnsworth will go to Mitchell, S. D., and open a sanitarium.

Dr. D. W. Rudgers, of Yankton, S. D., has sold his practice and office fixtures to Dr. Frank Conger Smith, of New York City. Dr. Rudgers has practiced for nearly twenty years as a specialist in ear, eye and throat work. He will remain associated with Dr. Smith for a while and then will go to San Diego, Calif., where he will probably locate.

At the annual meeting of the Black Hills Medical Association in Deadwood, S. D., Dr. F. E. Ashcroft, Deadwood, was elected president; Dr. T. M. Moffit, vice-president; Dr. F. W. Minty, secretary-treasurer. The next meeting will be held at Deadwood in January and will be made the occasion of celebrating the fiftieth anniversary of the entrance of Dr. Babcock of that place into the medical profession.

The Chicago Ophthalmological Society devoted its last month's meeting to the discussion of glaucoma. Men from New York City, Boston, and Denver spoke at the meeting. Dr. Frank C. Todd, of Minneapolis, opened the discussion, and gave an account of Col. Elliott's recent operations in the Northwest, most of which have shown excellent results, especially those cases that gave any hope of relief.

The Civic and Commerce Commission of Minneapolis has had conducted a sanitary survey of the city. A few tenement houses were found unfit for occupancy, and conditions indicated the beginning of a slum section. Steps will be taken to remedy all such conditions; the city physician, Dr. Dutton, will go so far as to compel tuberculous persons living under such conditions to enter the city sanitarium.

POSITION WANTED

A young man with five years' experience in hospital and private practice, desires to become associated with a surgeon as assistant or with a physician who does not do any surgical work. Address 84, care of this office.

PRACTICE FOR SALE

An established practice of $3,500 in city of 800, western North Dakota, on main line of railroad. German community. Good reasons for selling. Snap for some German-speaking physician. Address 81, care of this office.

OFFICE FOR RENT

First-class Minneapolis office for dentist or doctor. Reception room en suite with doctors. Terms very reasonable. Address 83, care of this office.

PARTNERSHIP PRACTICE FOR SALE

Established eight years in a town of 500 in Southern Minnesota. Collections of firm above expenses about $6,000, which may be increased by doing some surgery. Entire practice, including residence valued at $3,500 and $1,400 of office fixtures, horses, etc., for sale for $5,000. Will sell without real estate. Two men are needed to handle the business, in which there is no competition. Address 78, care of this office. Terms to suit.

TEMPORARY WORK WANTED

I will take a practice as locum tenens for the remainder of December. Graduate of an A1 school. Address 82, care of this office.

PRACTICE FOR SALE

Well established practice of $4,500 in up-to-date town of 1,000 population in northern Minnesota. Collections 98 per cent. Large territory, one other physician. Competition easy. Free office. Reason for selling, going to specialize. Can give possession at once. Price for practice and part of office fixtures, $500. Address 85, care of this office.

PRACTICE FOR SALE

I have a twelve years established practice in one of the best cities of eastern South Dakota which I will release to the physician purchasing my eight-room modern residence. Choice location. Only reasonable price for residence. You cannot lose. Address 79, care of this office.

INTERNE ASSISTANT WANTED

An interne assistant at the Nopeming Sanatorium, near Duluth, salary $25 a month with board. The fact that the applicant has tuberculosis not necessarily a disqualification. Apply to Secretary, St. Louis County Sanatorium Commission, West Duluth, Minn.

FINE MINNEAPOLIS OPENING FOR PHYSICIAN

Physician's twelve-room residence with offices for rent in the business center; six rooms now rented. Complete with household and office furniture. Electric wall-plate, static machine, microscope, vibrators, and other instruments for sale. Also electric automobile. Garage with charging-outfit for rent, or charging outfit for sale. Write or call 825 First Ave. So., Minneapolis.

HOSPITAL FOR SALE

A well equipped hospital of 16-bed capacity in a town of 4,000. Excellent location for an enterprising physician or surgeon. Terms reasonable. Address M. S., care of this office.

A YOUNG PHYSICIAN WANTED

A young man for assistant. Must be Scandinavian and able to do refractive work. State monthly salary wanted. Address, for particulars, D. B., care this office.

PRACTICE FOR SALE

I have an established practice of $4,500 in one of Wisconsin's best towns of 1,000 population. Splendid schools, churches, electric lights, sewer and city water. Practice can easily be increased by doing surgery. Am leaving state. Price, $800 for practice and office fixtures. Norwegian preferred. Address B. G., care of this office.

DOCTOR: If you want practical post-graduate work during the fine season in a delightful city, write for particulars. Chas. Chassaignac, M. D., Dean New Orleans Polyclinic, Post-graduate School of Medicine, Tulane University of Louisiana. P. O. Drawer 261, New Orleans, La.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF MINNESOTA FOR THE MONTH OF SEPTEMBER, 1913

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	2															
Albert Lea	4,500	6,192	3													1		
Alexandria	2,681	3,001	1															
Anoka	3,769	3,972	3	1														
Austin	5,474	6,960	5	1		1												2
Barnesville	1,326	1,353	1															
Bemidji	2,183	5,099	9	1	1						1			1	1	1		
Benson	1,525	1,677	2															
Blue Earth	2,900	2,319	*															
Brainerd	7,524	8,526	6												1	1		
Breckenridge	1,282	1,840	6												3		1	1
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	5	1	1													
Crookston	5,359	7,559	7												3	1		1
Dawson	962	1,318	0															
Detroit	2,060	2,807	2													1		
Duluth	52,968	78,466	95	7	2	3	1	1						4	20	9		9
East Grand Forks	2,077	2,533	2												1			
Ely	3,572	3,572	14	2	1										6			2
Eveleth	2,752	7,036	0															
Fairmont	3,440	2,958	3															2
Faribault	7,868	9,001	8	1		2										1	1	1
Fergus Falls	6,072	6,887	4	1		1									1			
Glencoe	1,788	1,788	0															
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	2													1		
Hutchinson	2,495	2,368	3												1			
International Falls		1,487	4											1				1
Jordan	1,270	1,151	1			1												
Lake City	3,142	3,142	5		1													
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	4												1	1		1
Luverne	2,223	2,540	4												2			
Madison	1,336	1,811	2												1	1		
Mankato	10,559	10,365	8	2	1							1				2		
Marshall	2,088	2,152	3								1							
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	272	24	5	9	3	2				1		5	24	23	2	16
Montevideo	2,146	3,056	4			1												
Montgomery	979	1,267	0															
Moorhead	3,730	4,840	5											1	1			
Morris	1,934	1,685	3												1			
New Prague	1,228	1,554	0															
New Ulm	5,403	5,648	3	1														
Northfield	3,210	3,215	1															
Ortonville	1,247	1,774	*															
Owatonna	5,561	5,658	3															
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	8			1								1	1			
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	2													1		
Rochester	6,843	7,844	37												1	10		
Rushford	1,100	1,011	1	1														
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	15	2		1					1				2			1
St. James	2,102	2,102	3													2		
St. Paul	163,632	214,744	198	13	3	10		1						1	22	7		24
St. Peter	4,302	4,176	4	1												1		
Sauk Centre	2,154	2,154	0															
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	2															
South St. Paul	2,322	4,510	1												1			
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	3													1		1
Thief River Falls	1,819	3,174	3												2			
Tower	1,111	1,111	0															
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	4			1									1			
Virginia	2,962	10,473	15			1		1						2	7			
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	4											1				
Waseca	3,103	3,054	2												1			
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	2												1			
Willmar	3,409	4,135	4				1											
Winona	19,714	18,583	18	3		1		1						1	1			
Winthrop	813	1,043	1															
Worthington	2,386	2,385	0															

REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Poliomyelitis	Epidemic Cerebro-Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	3															
Aitkin	1,719	1,638	4		1		1								1			
Akeley			0															
Appleton	1,184	1,221	1															1
Belle Plaine	1,121	1,204	0															
Biwabik		1,690	1															
Bovey		1,377	0															
Browns Valley	721	1,058	1												1			
Buffalo	1,040	1,227	2															
Caledonia	1,175	1,372	1															
Cass Lake	546	2,011	4								1				2			
Chisholm		7,684	15		1	1									5	1		2
Coleraine		1,613	1															
Delano	967	1,031	0															
Farmington	733	1,024	0															
Fosston	864	1,055	2												1			
Frazee	1,000	1,645	2															1
Grand Rapids	1,428	2,239	1															
Hibbing	2,481	8,832	16			2								1	5			
Jackson	1,756	1,907	0															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	4												1			
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	1		1													
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	2			1												
Nashwauk		2,080	2															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	1	1														
Park Rapids	1,313	1,850	2												1			
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	0															
Pine City	993	1,258	2															1
Plainview	1,038	1,175	1															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	1															
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	*															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	1															
Springfield	1,511	1,482	1												1			
Spring Valley	1,770	1,817	0															
Wadena	1,520	1,820	6		1													
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	1															
Wheaton	1,132	1,300	3			1					1				1			
White Bear Lake	1,288	1,505	2															
Windom	1,944	1,749	4		1													
Winnebago City	1,816	2,555	3															2
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			3	1														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			5	3														
Fergus Falls, Hospital for Insane			15	1	1	2												
Hastings, Asylum			7	6														
Minneapolis, Soldiers' Home			4															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			9			1												
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			8	1		2												1
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1															1
OTHER PARTS OF STATE			756	44	13	23	2	1	2		6	2	1	4	135	58	2	74
Total for state			1751	119	34	66	8	7	2		11	4	1	23	261	124	5	145

*No repor received. Registrar not doing his duty.

125 stillbirths not included in above totals.

PUBLISHER'S DEPARTMENT

AN EMERGENCY CASE FOR $1.

The Abbott Alkaloidal Company of Chicago offers the profession a "9-vial leather pocket case" filled with emergency remedies in the form of active principle granules.

This price, of course, is way below cost. It is an admirable advertisement for the company and an equally desirable introduction to the physician who desires. There is one for everybody.

THE AKOUOPHONE

The stethoscope is an indispensable instrument in the practice of medicine and surgery. The Akouophone is a new, vest-pocket, low-price ($3.50) differential stethoscope, giving far better results than can be obtained from the ordinary stethoscope. It is manufactured by the Huston Bros. Co., of 30 East Randolph St., Chicago.

The company's card appears on another page, and, in addition to the above instrument, they describe an improved pessary.

The company guarantees satisfaction to all customers, cheerfully sending their goods on trial.

THE METROPOLITAN MILK COMPANY

The milk problem has become a very grave one in all cities, and it can be solved only by men who solve big problems. Milk can be produced and distributed, in a safe and proper way, only by capital expended by experts.

The Metropolitan Milk Company, the successor of the Minneapolis Milk Company, promises the city and the medical profession that it will furnish the people of Minneapolis "rich, clean, healthful milk and cream," and at the right price. Its new plant, modern in every respect, will enable it to do so; and in doing so it will deserve, and it will receive, the thanks of all citizens.

THE AMERICAN MEDICAL DEFENSE ASSOCIATION

The above is a new defense organization organized under the laws of Illinois by men who have had years of experience in the work. It promises to protect its members without quibbles or technicalities. The cost will be made as low as possible, and any surplus that may be accumulated will be credited on the next year's premiums.

The Association will aim to nationalize the work done by the State Associations. The mutual plan is adopted to avoid the heavy expense of doing business on the stock plan.

Its by-laws and literature may be had by addressing The American Medical Defense Association, Unity Building, Chicago.

SALVARSAN

Discussing the use of neosalvarsan, C. H. Chetwood, of the New York Polyclinic Medical School, says: "It is important to distinguish, if possible, between the reaction from the medication, and the increased activity of the invading parasites of the disease. In one instance increased dosage and renewed attack are demanded, in the other are interruptions of the treatment, until the irritating influence of the chemical agent upon the system has subsided." In ordinary cases Chetwood advises repetition of small doses every few days or full dose every week "until an aggregate of from 2.5 to 4 grams have been employed in a period of from three to six weeks."

THE SACRED HEART SANITARIUM OF MILWAUKEE

It is to be considered fortunate that our sanitariums readily fall into classes, each class meeting the needs of a certain class of patients. Some of the religious denominations are conducting hospitals and sanitariums that meet the needs of certain classes of patients as other hospitals and sanitariums cannot meet them, although the latter institutions are unexcelled in their peculiar work.

The Sacred Heart Sanitarium of Milwaukee falls readily into its class, and ranks very high in its class, providing especially for nervous, mental, and drug cases, and at very reasonable rates. Its superintendent, Dr. S. S. Stack, has long maintained a high standing in the profession, and his hospital is doing an admirable work in its field.

CLINICAL RESULTS WITH THE PHYLACOGENS

Under the above caption, Dr. R. W. Locher, Grafton, W. Va., in the Memphis Medical Monthly, has this to say: "In judging the therapeutic value of a new preparation, it is advisable that a great number of case-reports be considered; and, in order that the medical profession may have a great number of cases from which to judge, it is the duty of every physician to report such results as he may have. The Phylacogens are of comparatively recent origin, and yet even at this early date they have displayed their ability to produce satisfactory and in some cases remarkable results in the treatment of a great variety of pathological conditions. * * *

"We are informed that the Phylacogens are not claimed to be a 'cure-all' in any sense of the word, but simply valuable therapeutic agents in the treatment of numerous infectious conditions. From the very fact that all but Mixed Infection Phylacogen are to be directed against specific infections, it is necessary, before employing them, to make an accurate etiological diagnosis. For obvious reasons one cannot expect to produce results if Rheumatism Phylacogen is administered in a case that is really one of gonorrheal arthritis. Neither will an osteomyelitis or a syphilitic periostitis yield to Rheumatism Phylacogen, but the former may be logically treated with Mixed Infection Phylacogen. It would seem that this latter Phylacogen will ultimately prove of great value to the surgeon in combating post-operative infections, as well as infections following injuries of all kinds."

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PREPARATORY AND POST-OPERATIVE TREATMENT*

By FREDERIC J. PLONDKE, B. S., M. D.
ST. PAUL

Of all the problems confronting the abdominal surgeon, perhaps none are more difficult to solve than post-operative complication. Few other conditions cause the anxiety, and so severely tax the ingenuity of the surgeon, and surely there are none that make so strong a demand for the prompt exercise of good judgment.

The man of large experience, who is most competent to administer and direct the treatment intelligently, is usually so actively employed with operative and other work that he is often compelled to entrust the after-care of his patients to indifferent, inexperienced, or otherwise incompetent assistants, who in turn are apt to delegate the nurse to report the condition and depend on her to apply the treatment; the patient, therefore, is often neglected or, at least, deprived of the attention her condition demands.

On the other hand, the young surgeon, in his over-zealous solicitude for the patient's welfare, may be led to magnify existing conditions and add insult to injury by meddlesome interference. The preparation may be adequate; the operating-room technic perfect; the surgeon's skill unquestioned; but, with all that, what is the gain, if the patient on leaving the table passes into strange and unfamiliar hands only to suffer all the consequences of faulty after-care, and as a result find her way to the autopsy table?

Post-operative treatment should begin with prophylaxis. While the latter term is of less service to the surgeon than to the internist, it is undoubtedly true that careful study, and preparation of the patient before operation, aid largely in preventing the distressing after-effects, and often also in reducing the mortality; by careful preparation is not meant the old-time method of starving and purging for a week beforehand, with consequent impairment of the patient's strength, but a painstaking investigation of all the organs and functions of the body with appropriate treatment of any faulty conditions that may be found, postponing the operation, if possible, until the patient is in fit condition.

When circumstances permit, the patient should be placed on a restricted diet for two or three days before operation. This consists of well-cooked, easily digested food, low in proteids and devoid of raw fruit and vegetables, with a large quantity of water. Thirty-six to twenty-four hours before the operation she should receive a non-irritating cathartic, preferably castor oil, one or two ounces, and two or three hours before a soapsuds or a simple enema. In emergencies where time does not permit a movement from a cathartic at least six hours before the time for operation, one had better rely on the enema alone, as a churned-up condition of the small intestine at the time of operation is not conducive to a comfortable post-operative convalescence. Every effort should be made to allay the fears of the patient. No mat-

*Read at the 45th annual meeting of the Minnesota State Medical Association, Minneapolis, October 3 and 4, 1913.

ter how grave the prognosis, she should be buoyed up by the assurance that the danger is slight and that the operation will restore her former good health. One must always take the precaution, however, to apprise the relatives of the true condition, as a neglect of this may provoke undue censure or a possible malpractice suit.

The choice of anesthetic must be left largely to individual preference. Suffice it to say here that ether is contra-indicated by the presence of lung complication, either acute or chronic. Chloroform, on account of its irritating effect on the liver and kidney cells and its depressing action on the heart, should not be used when these organs are not in a healthy state. Chronic myocarditis and mitral insufficiency of moderate degree stand ether fairly well. With aortic lesions or a markedly fatty heart any anesthetic is dangerous. Albuminuria, with a normal amount of urine, without casts and with a normal blood-pressure, is not a contra-indication to ether. In selected cases where general anesthetics are unsafe, spinal analgesia gives very satisfactory result. With the possible exception of cerebral congestion or advanced myocarditis, it may be said, where other anesthetics are safe, nitrous oxide and oxygen is safer.

Methods of preparing the parts are as numerous and varied almost as there are surgeons and hospitals; many are good, none are perfect. In our clinic at St. John's hospital the procedure is as follows: In the morning, at least two hours before the time for operation, a rubber sheet or Kelly pad covered with a bath-blanket is placed under the patient in her bed. The parts are shaved carefully, then scrubbed gently but thoroughly for ten minutes with aseptic gauze, green soap, and sterile water, followed by ether and alcohol. After a few minutes the skin is wiped dry and the field covered with dry sterile gauze held in place by a sterile towel binder. This work is in charge of the operating-room force, and is done by a surgically clean nurse. The material for this purpose (known as the scrub package), consists of six towels, six yard pieces of gauze, scrub sponges, etc., all wrapped in a towel and sterilized with the other surgical dressings. An ample supply of these packages is always kept on hand. When the patient is on the operating-table and partially anesthetized, the dressings are removed and the skin rubbed gently with a sponge, dipped in a solution of one-tenth of one per cent iodine crystals in benzine; after five minutes the skin is again wiped dry, and tincture of iodine diluted with one-fourth alcohol is applied thoroughly. In emergencies where the patient must be taken directly to the operating-room the preparation is the same, excepting that the iodine and benzine solution is omitted and that the scrubbing is done on the ward-cart in the operating-room. The reason for the latter is, that the patient, after being prepared, can be lifted on to a dry pad on the table, whereas if prepared on the table she is compelled to lie on the cold wet pad throughout the entire operation, which, it must be admitted, is conducive to the development of post-operative shock, pneumonia, nephritis, etc.

Surgical shock, perhaps the most dreaded of all post-operative complications, is easier prevented than cured, and a close adherence to this theory will give much better results than to defer treatment until symptoms appear. When a patient's pre-operation record and her general condition at the time for operation are such as would indicate a possibility of shock developing, we give a hypodermoclysis of normal salt solution as soon as she is partially anesthetized and before the operation is begun, allowing the solution to enter slowly during the time the operation is in progress, giving about three pints in all. If, in the course of an apparently simple operation, it is found that for any reason it might be unduly prolonged, the hypodermoclysis is begun at once. Under no circumstances do we wait until the pulse indicates impending shock. The salt solution is given during the operation in all septic cases, not for the stimulating effect alone, but also for the purpose of diluting the toxines. When the operation is sufficiently advanced that a distended colon does not interfere, she is given one quart of salt solution per rectum. This is done while still sound asleep; otherwise it might be expelled. In the septic cases and where the operation has been prolonged, proctoclysis by the drop method is begun one and one-half hours after leaving the table; for this purpose one-half strength salt solution or tap-water is employed.

These preventive measures have been used by us for the last two years with the result that in over 1,000 cases operated on during that time there has not been a single case of severe shock. When shock is present the same benefit is not derived from hypodermoclysis, as, on account of the collapsed vessels, absorption takes place more

slowly. In severe cases, therefore, one should not waste time with a hypodermoclysis, but give an intravenous infusion instead and follow later with a hypodermoclysis and proctoclysis. Up to a few years ago we used stimulants extensively; now we use them very rarely. Undoubtedly there are cases in which stimulants are of the utmost value, but with our present conception of shock, viz., that the blood stagnates in the veins of the splanchnic area, with consequent depletion of the general circulation, it would appear that they should be withheld until the empty heart and vessels have been given something to work upon; thus, intravenous infusion or hypodermoclysis of salt solution with ten to twenty drops of adrenalin solution, followed immediately with a hypodermic of caffeine or other stimulants, would seem more rational treatment than to whip up an already overworked empty heart with stimulants alone. When these measures fail direct transfusion should be considered.

The ordinary post-anesthetic vomiting requires no treatment beyond rinsing the mouth, absolute quiet, and a hypodermic of morphine. If, however, after five or six hours the vomiting persists, the patient should be turned on her side or placed in a sitting position; copious draughts of sodium bicarb. sol., one dram to the tumblerful of water, often give relief. It is usually rejected, but serves to neutralize the acid and wash away the ether-laden mucus; other medication has, in our experience, been without effect. If these simple measures fail, the stomach should be washed out with a tube, repeating it every few hours, if advisable, until the vomiting ceases. It will be found that by using a tube of large caliber the lavage is more thorough and that less time is consumed, which latter is usually very much appreciated by the patient. It would seem that the large tube would be more difficult to swallow, but experience shows that this is not the case. It must always be remembered that persistant vomiting may be caused by acidosis, ileus, peritonitis, etc., and that symptomatic treatment in such cases will surely fail.

The amount of gaseous distention following an abdominal operation will depend largely on the preparation and technic; i. e., an empty, passive condition of the alimentary tract at the time of operation is less conducive to gas-formation than if distended with food, etc., or if churned up as a result of an active cathartic immediately prior to the operation.

Rough handling with long exposure of the abdominal contents during the operation also predisposes to post-operative distention. When, after twelve hours, the patient complains of distress and examination discloses distention, she should receive a simple, soapsuds, pure glycerine, or Noble's enema. As persistalsis often continues after the evacuation, it is well to allow the tube to remain so that the gas may escape as soon as it is forced into the rectum. The writer has made repeated efforts to pass a tube up into the sigmoid and colon, but has invariably failed, the tube curling in the rectum, giving the impression that it had passed up. He has concluded, therefore, that passing a tube "high" is a joke rather than a reality.

If, after repeated enemas, change of position, etc., the distention is not relieved, heat or cold should be applied to the entire abdomen. Turpentine stupes are the most satisfactory, but, unfortunately, they saturate the dressings and are apt to infect the wound. Eserine salicylate, grs. 1-60 to 1-30, every three hours, often gives relief by promoting peristalsis. For the same purpose, hormonal, 20 c.c., intravenously, has given the best result in our hands, especially in old patients where the distention was apparently due to a general relaxation. Enemas of alum solution, asafetida, or milk and molasses, sometimes bring results where the others fail. With these measures ineffectual and the distention increasing, together with vomiting, one should not hesitate too long in reopening the abdomen. If at the second operation an obstruction is found, and can be entirely relieved, the wound may, in the absence of peritonitis, again be closed; otherwise a loop of the distended gut should be clamped off with a tube-covered stomach forceps, the gut incised, and a rubber tube fastened into the opening by a purse-string suture, as in gall-bladder drainage. The gut surrounding the tube should be sewed to the peritoneum in the upper angle of the wound. The wound should be closed with silkworm gut suture, leaving a drain in the lower angle. The accumulated gas and toxic fluids escape through the tube and give immediate relief. The obstruction, if still present, can be relieved at a subsequent operation. The fistula, with proper attention, usually heals kindly without operative interference. It is often very difficult to positively differentiate between simple protracted distention with vomiting, ileus, and peritonitis. In the first named, relief is usually obtained before the time that

operative interference is indicated. In the two latter, the ultimate treatment is much the same, viz., a second operation, which usually gives the only hope of saving the patient. When vomiting is present in either case, frequent gastric lavage gives temporary and usually the only relief.

Acute dilation of the stomach following an operation is recognized by distress and distention in the upper part of the abdomen, with persistent vomiting, in gulps, of olive-green fluid, non-feculent in character. Gastric lavage usually gives prompt relief. It should be repeated frequently until the stomach walls have regained their tonicity. Occasionally, on account of its immense size, the stomach cannot be completely emptied until the patient is placed in the knee-chest or exaggerated Trendelenberg position. In the extreme cases the tube should be allowed to remain in the stomach, so that the gas may escape continually. A pad should be placed over the upper abdomen and secured by a tight abdominal binder.

Post-operative acidosis is probably of more frequent occurrence than is generally supposed. Mild cases, no doubt, are often unrecognized and recover without special treatment. This fact, however, should not preclude a constant guard against its development, for it is equally certain that, when the case has advanced to the stage of easy recognition, it is practically hopeless. It usually appears in patients who have been starved prior to operation, is proportionately frequent in the young, and occurs oftener after chloroform than ether. Its presence is manifested by acetone in the urine, a sweetish odor to the breath, vomiting, which begins from two to five days after operation, jaundice, restlessness, convulsions, and coma. Treatment consists of washing out the stomach; sodium bicarb., 1 to 6 drams, best given through the tube after lavage; and one-half to one ounce, with a like amount or more of glucose, in one pint of water per rectum. In severe cases the sodium bicarb., with or without glucose, should be given in salt solution subcutaneously or by intravenous infusion.

Post-operative pneumonia is usually the result of pre-existing bronchitis, careless exposure or inhalation of foreign particles while the patient is unconscious. The treatment, therefore, is largely preventive. With bronchial irritation chloroform or ether, especially the latter, should, if possible, be replaced by other anesthetics. It is safer still to postpone the operation until the irritation has subsided. Efforts should be made to avoid exposure while transporting the patient to or from the operating-room. The table-pad should be dry and warm, and the patient wiped and wrapped in a dry, warm blanket before leaving the table. A hypodermic injection of $\frac{1}{50}$ to $\frac{1}{150}$ grain of atropine, one-half hour before operation, prevents excessive secretion of mucus. This, with a careful anesthetic, deep enough at all times to suppress vomiting, should prevent inhalation of foreign matter. When pneumonia is present, place the patient in a sitting position, give plenty of fresh air, and meet indications as they arise. Uremia can also be prevented in most cases by careful avoidance of exposure, irritating anesthetics and other similar exciting influences.

The treatment of an attack does not differ from that arising under other circumstances. When the ordinary measures fail, bleeding, with intravenous infusion of salt solution, should be employed. This, by relieving the system of a part of the surcharged blood and diluting that which remains, thereby promoting diuresis, diaphoresis, etc., often gives prompt relief.

Pain varies in severity in different individuals; for example, one patient suffers intensely after a trivial injury, while another passes through a prolonged mutilating operation and offers little complaint. It is obvious, therefore, that the personal element plays an important rôle in the discomfort following an operation. This must always be considered when administering anodynes, as the apparent suffering of a neurotic patient may easily mislead one into their too frequent and protracted use. When continued indefinitely or given in excessive amounts, anodynes are dangerous; but valid objection to their judicious use (morphine, gr. one-sixth two or three times daily) for the first twenty-four to forty-eight hours cannot be supported by clinical facts.

With the use of salt solution during and after operation, thirst has lost most of its terror. Where formerly fluids were withheld entirely or allowed only in sips, there is now no hesitancy in giving them in liberal amounts. Even in persistent vomiting, copious draughts from time to time are advisable. If retained there is instant and permanent relief; if rejected there is at least temporary relief, and the stomach is cleansed of irritating mucus and ether, which

latter alone is often the cause of continued vomiting. Cracked ice is soothing, but causes hyperemia of the mucous membranes with consequent increase of thirst. It should, therefore, be prohibited. Hot water or tea is occasionally tolerated when cold water is not retained. Modified drinks of various kinds, such as lemon juice, glycerine and water, charged waters, raisin tea, etc., have been given extensive trial, but in most instances it was found that pure cold water by mouth and salt solution by rectum, give the best results.

DISCUSSION

Dr. J. Warren Little (Minneapolis): I was very much pleased to hear the doctor's paper. It was well written, and he has presented the subject in a very able and masterly way. It will be impossible for me to go over all the points of his paper, but there are a few salient features upon which I wish to speak.

Our preparation is becoming more and more simple. If the patient comes into the hospital on the day of the operation, no preparation, aside from giving an enema, is made before he is taken to the operating-room, and if the operation is to be done very soon after entering the hospital, the enema is omitted. After entering the operating-room the skin is cleansed with benzine, to remove the fat in the pores of the skin. We then use tincture of iodine and alcohol, equal parts, and paint the site of the operation and the surrounding parts with this mixture. We never use water on the skin before using the iodine. In using the benzine on the abdomen, be careful it does not run to the back, because if the air is excluded it will blister.

In old people we are careful not to give much cathartic medicine; in fact, not any at all the evening before. To other patients we give an ounce of castor oil in the evening, followed in the morning by the enema. The preparation is so simple that it can be used in the country home or in the hospital.

Post-operative care is very important, and the doctor struck the keynote when he said that the surgeon who does the operation should look after the patient. I know that the men who are very busy have to delegate this work to some one else, but if they had time to do it themselves they could do it better than anyone else.

As to what should be done for the patient following an operation, my advice is to do as little as possible. I believe in giving morphia, hypodermically, following an operation until the severe pain is over. The amount given rarely exceeds two or three doses and from one-eighth to one-quarter grain. After twenty-four hours, when the gas-pains occur, it is better to depend upon enemas, as it seems to me gas-pains are often rendered worse by the use of morphia.

If there is much distension in the upper abdomen, passage of the stomach-tube often gives great relief, and in acute dilatation of the stomach, repeated lavage is a life-saving measure. I think patients do better to have a little hot water soon after the operation if they want it; and if it agrees with them, allow them to have a little cold water, but do not give them grape-juice, orangeade, or any sour drink. Alkaline solutions are much better.

Distension of the upper abdomen is not influenced much by enemas, but in the lower abdomen they are the most serviceable measure we have.

I shall not go into all the details, but I am very glad to have heard the doctor's paper, and on the whole I agree with him.

Dr. J. W. Andrews (Mankato): I have two or three observations to make in connection with this paper. I was much interested in it, and there are many good things in it. The writer in speaking of dilatation of the stomach I think passed over it rather lightly. I regard it as an exceedingly serious condition, which very often terminates fatally. I have no criticism to pass on the treatment that he has suggested for it; however, he did not place as much emphasis upon the seriousness of the condition as I think he should have done.

As to the preparation of the patient in the use of antiseptics, iodine, and other agents before operation, there is much in them, and yet I believe the majority depend upon iodine.

As to the bloating following operations, I want to emphasize the fact in connection with gas-pains that the great danger in gas-pains is in administering morphine to relieve them. You can all clearly see that it is not the thing to do. While it may afford relief for an hour or two hours, it is all the time aggravating the condition, and I have seen a fatal issue from the use of morphine given under those circumstances, whereas if it had been withheld the patient might have recovered. I have seen cases of obstruction of the bowels diagnosed from the use of morphine, so that the distended bowels were unable to perform their functions, and peristalsis was arrested. If I could say anything to influence any surgeon in a post-operative work to steer clear of morphine, if there is distension of the bowels, I should feel that I had done some good.

The writer spoke about the hypodermic use of eserin. Physostigmin is an excellent remedy, although I would hesitate to use it in the doses suggested. One-thirtieth of physostigmin is a powerful remedy. I have seen one death from its use in large doses. Death occurred through the arrest of respiration, the effect being produced upon the respiratory centers. In the case I saw, the heart was beating almost normally to the very last breath, but the patient was unable to breathe and died for want of oxygen. I would recommend, as he did, the use of physostigmin hypodermically and use it freely, say the one-hundredth of a grain every hour for three hours and then every three hours. The one-hundredth of a grain would be as large a dose as I would like to use, and you will get a result from using it in that way.

The other remedy which he preferred to physostigmin I did not catch, but I understood it to be hormonal.

The writer of the paper spoke of having a thousand cases without shock. We do not get very much shock now by our modern methods.

Dr. W. H. Aurand (Minneapolis): I have enjoyed this excellent paper very much. There are one or two points I would like to emphasize, and these are in regard to the examination of the patient's blood before operation and the examination of the kidney conditions. I think oftentimes we are too hasty in going into operations that could be postponed. I think very frequently we can prepare our cases for a month in advance by building up their blood and getting them in a proper condition to stand a serious operation.

Dr. W. H. Magie (Duluth): I would like to say a word or two about the care of the alimentary canal after surgical operations. In my experience the gastric disturbances are in proportion to the amount of ether that has been given as well as the traumatism and the exposure of the abdominal contents. In the old days it used to take us an hour to do an operation for appendicitis, and we soaked the patient with ether in a closed cone. Our patients were terribly traumatized. They were also ether-poisoned. As a result we had vomiting and shock, but since the advent of modern surgery and modern technic, having been taught that ether is a deadly poison, and that the less a patient takes of it the better the patient is off, the vomiting and shock have been greatly reduced. Therefore the more dexterous you are in performing surgical operations, the less ether is required which is all the better for the patient. If you can do an appendix operation in ten or fifteen minutes, the patient does not realize that he or she, as the case may be, has been operated on. There is no or little gastric disturbance. There is very little need to use morphine. I lived and did surgery in the days when we were forbidden to use morphine, and I thank God we have passed through that period.

I disagree with Dr. Andrews in the use of it after surgical operations on the ground that it interferes with the proper performance of the functions of the intestines. Ether suspends temporarily the functions of digestion when it is given for long periods of time. There should be no interference with the intestinal functions in a surgical case earlier than the third or fourth day. Cathartics produce peristalsis, and peristalsis is what the pain is due to. We give morphine for the purpose of quieting peristalsis, and in order to reduce it to a minimum. We must be careful what we put into the stomach. I do not give my patient during the first twenty-four hours anything but hot water or cracked ice by the mouth. We give them plain tap-water per rectum, consequently we do not have much gas.

I do not bother with cathartics until the third or fourth day after the operation. These patients never die of constipation. Leave the bowels alone. Often the bowels move spontaneously on the fourth day without cathartics. On the morning of the third or fourth day, if the bowels have not moved spontaneously, I give them citrate of magnesia or Rochelle salts followed by an enema, and that is practically all there is to the after-treatment.

I agree with Dr. Little that after you get these patients back to the bed the less you do to them the better.

Dr. Donald Balfour (Rochester): I would like to emphasize one point which has not been mentioned by those who have discussed the paper of Dr. Plondke, and that is the value of enterostomy in cases of obstruction. There is no doubt but that, by bringing up a loop of distended bowel in all cases of impending obstruction, or when it is evident from the patient's condition and the gradually increasing trouble, the obstruction will not be relieved. Enterostomy as described by Dr. Plondke has saved a great many lives, and would probably save all if done early enough. This procedure may be duplicated in cases of intestinal obstruction which have come to operation when the obstruction still persists at the completion of the operation because of paresis. In these cases it is efficient to fix a loop of distended bowel to the peritoneum at the incision to have it convenient in case an enterostomy is necessary.

Dr. J. W. Andrews (Mankato): May I rise to a question of privilege?

The President: Yes. Proceed.

Dr. Andrews: I have been misunderstood in regard to the use of morphine after operation. When the distention of the bowels commences then I cut off my morphine absolutely, not necessarily if that condition does not obtain.

Dr. L. C. Bacon (St. Paul): There are two points I wish to speak about. With Dr. Magie, I am thankful that the day is past when we do not use morphine in these cases. Of course, it would be folly to depend upon morphine to relieve pain without trying to ascertain and relieve the condition which produces it, but in the early stages, after abdominal operations, the pain is usually due to excessive peristaltic action. If we refrain from the use of morphine we allow our patients to become exhausted. One other thing we do: We use salines in our proctohypodermoclyses. We know that the use of salines lessens the functionating capacity of the kidneys, and why should we continue to use them? For the past year I have been using plain sterile warm water per rectum or subcutaneously, when indicated. It is not original with me. It is a procedure which is being taken up extensively, and if you use it you will find that your patients will retain very readily far larger quantities of the liquid than they do of the salines. You will find, as a rule, the kidneys will functionate thoroughly and more readily. By the use of plain sterile water the general well being of the patient will be established far sooner than when large quantities of saline that the system cannot possibly utilize are being exhibited.

Dr. C. J. Holman (Mankato): Just a word with reference to acute dilatation of the stomach. There is one point that was not mentioned, and it is this: In addition to the use of gastric lavage, if you will place the patient on his or her abdomen to the right, you will find that the causes for obstruction at the pyloric end will be removed, and the patient will rest a great deal more comfortably, and the acute dilatation will not continue.

I wish to emphasize what Dr. Bacon has said with reference to the use of plain water. I have been doing that for the last six or nine months, and I find the patient is more comfortable, and there is greater satisfaction from its use.

Dr. R. E. Farr (Minneapolis): With reference to the question of shock as brought out by the author of this paper, his statement that he had one thousand operations without any shock was somewhat surprising to me. I have not been so fortunate, and I believe that perhaps the run of cases has something to do with that. In my experience, we do have shock in some of our bad cases, and anything that can be used to prevent it is very important. The work of Crile shows that inhibition of shock, or the prophylaxis with regard to shock, is important, and I believe the time is coming when it will be a universal procedure to cut down the amount of anesthesia, as he has done, thus reducing the amount of shock, and reducing not only the mortality but the morbidity and the post-operative suffering.

Harris, of Chicago, recently has been doing some extensive work in nerve-blocking, which may revolutionize our work to a large degree.

There is one point with regard to post-operative comfort which I think ought to be mentioned, and that is the use of quinine and urea. There is no question but that it has a very desirable effect if we only knew how to use it. I believe Crile uses it to better advantage than anyone else. We have used it in dual operations on different sides of the body, using it on one side as a control, and using it in cases of double hernia and operations of that kind on one side, and have found that it prevents post-operative pain in proportion to the extent of its use and the care with which we used it. If we used it in a half-hearted way we were not so fortunate.

In regard to post-operative comfort, there is one point, which was brought out by Dr. Magie, that is important; and right here comes a very sharp dividing line between the man who is prepared to do surgery and the man who is not. I saw a case within the last year in consultation and was asked to be present at the operation. The patient was a man who had a pulse of 65 and a temperature of 100 degrees, a few hours in an acute attack of appendicitis, and in four days he was dead. There was no occasion for it except that he remained on the table for two hours and fifteen minutes and that his intestines were terribly traumatized. Any man who is properly trained should have taken care of him in twenty minutes. The operator received a big fee for the operation. When it comes to the matter of earning a livelihood, I suppose it was all right, but from the patient's standpoint it was not. These patients have post-operative comfort largely in proportion to the way we handle the tissues and the respect we have for them.

Dr. Plondke (closing): I wish to thank the gentlemen for their liberal and frank discussion. I wish also to emphasize what Dr. Little said about leaving these patients alone. It is true that, with careful preparation, and the operation properly done, the majority of the patients need no after-treatment; but when complications do arise we should know what to do and waste no time in doing it.

Dr. Andrews thinks I passed over the subject of dilatation of the stomach too lightly. Perhaps I did, but a subject upon which volumes have been written could hardly receive justice in a fifteen-minute paper. Dilatation of the stomach is comparatively rare, and, I fear, is often unrecognized or mistaken for some other condition.

One of the speakers suggested placing the patient on the right side. This is a good idea, but is not sufficient.

I am very glad that Dr. Andrews modified his objection to the use of morphine, because I believe that withholding morphine after operation when pain is severe, is unjustifiable cruelty.

I agree with Dr. Magie that the intestines should be kept quiet for forty-eight hours. It is claimed by those opposed to the use of morphine that it predisposes to obstruction and peritonitis, but, surely, there is more danger of these conditions developing when the bowels are churned up and congested as a result of the active peristalsis usually present after an abdominal operation, than if they are kept at rest by the use of morphine. Nervous, irritable patients with marked gaseous distention often expel gas freely after being relieved of their pain and distress for a time with small doses of morphine.

Dr. Andrews asked about the use of hormonal. "It is a liquid extract obtained from the spleen of an animal at the height of digestion." It is manufactured by Schering & Glatz, and comes in sealed bottles of 20 c.c., labeled for intramuscular or intravenous use. For spastic ileus it is best to use it intravenously, as the action is quicker. We have used it in about twenty cases and, excepting those in which there was mechanical obstruction, the results were very satisfactory.

Dr. Balfour's suggestion that enterostomy should be done oftener, is a good one. I believe many cases of obstruction, whether mechanical or spastic, can be saved by reopening the abdomen and draining the intestinal canal through a tube. If the tube is carefully fastened with a purse-string, the loop of gut may be dropped back in the abdomen. I believe it a little safer, however, to fasten it to the peritoneum in the upper angle of the wound.

Dr. Little struck the keynote when he said, "reducing the amount of anesthetic also reduces the danger of shock." Starting the anesthetic in the operating room and beginning the operation as soon as the patient is asleep and finishing it as rapidly as possible consistent with good work, will limit greatly the amount of shock. Of late we have been using nitrous oxide with a great deal of satisfaction. I believe, when properly administered, it is by far the safest anesthetic and is followed less often by shock, largely because anesthesia is produced quicker and the patient awakens immediately after the operation is finished.

MEDICAL ETHICS*

By S. J. Paulson, M. D.

FLAXTON, N. D.

When it was suggested that I write a paper on medical ethics to be read at this meeting, it occurred to me that it is a subject in which we are all vitally interested, a subject upon which we all have our views, and one that concerns us all, whether we are some noted man in a medical center or a humble practitioner situated in a little village by the roadside. I think you will agree with me that medical ethics is a topic of considerable importance,—of as great import as many other subjects with which we have to deal,—yet it is very seldom that we hear it discussed or treated in our own local gatherings. It is a subject where we apparently feel satisfied to leave "well enough alone."

We all undoubtedly have in our possession the little pamphlet of "Principles of Medical Ethics," adopted by the House of Delegates and issued by the American Medical Association. Whether "those are our sentiments" or not is my excuse for this paper, and my reason for occupying your time for the next few moments.

The House of Delegates of the A. M. A. says a profession has for its prime object the service it can render to humanity. Reward or financial gain is a secondary consideration. While we admit that the average doctor is a poor financier, is it not true that the money we can make is a most important factor? Why is the profession overcrowded today? Is it not because so many young men build air castles around the "easy money to be made"? And when writers publish their articles concerning this overcrowded condition and discourage young men from studying medicine, do we not often find that the chief argument is, "it does not pay"? Is it not also true that if the profession contained only such as practice for the love of the profession, there would be no such overcrowding? We say we are doctors because we love our work. What cases are we most tempted to slight—the paying ones or the charity cases? Which night call do you most often refuse—the rich man's or the pauper's?

A section in the little pamphlet treats of confidences entrusted by patient to physician. In spite of this there are doctors who will "talk too much."

We are also told that prognosis should neither be exaggerated nor minimized. Whenever I call to mind this paragraph I am also reminded of the frequent newspaper items in which the patient is reported to be at the point of death, and then the next issue announces that the patient has fully recovered, and says Dr. So-and-so had charge of the case. Such announcements are almost chronic in some instances. Then again, we hear of the miraculous cures, like breaking up typhoid fevers, checking pneumonia, etc. All of course for the welfare of the patient?

Our pamphlet contains a section which says it is wrong to advertise. Aside from the innocent announcement in our local paper, I suppose there are very few regular practitioners who directly advertise. There are, however, a great many ways open for indirect advertising, ways in which we seek to hold ourselves up to public view in preference to the other doctor. For instance, we can let the newspaper reporter "write us up" and tell the people all about us. Whether we have an understanding with the reporter need not be known, and we can even fuss and complain about the unscrupulous prying into our private affairs, and can even pretend that we do not like it. At times this sort of advertising can become so coarse as to be ridiculous. We at times find a man who permits the rumor to be circulated that the remedies he uses are superior to those used by the competitor. A certain doctor at one time used no drugs except such as were imported from a certain foreign country (that the headquarters of this foreign country is situated in St. Paul, Minnesota, was not mentioned), the foreign country being the one from which most of his patients had emigrated to the United States. Another doctor carried his hand-bag containing vials of tablets. His French patient always got French pills, while his German friend always got the old reliable German remedies.

Consultations are included in our code of ethics, and what a millennium we would have if they could be conducted according to directions! They should be for the patient's welfare. How often do we not find that they are held for most any other purpose! There are doctors who, when they call you into consultation, expect you to agree to everything that has been done and said, and are offended if you disagree with them in any way. Then, again, you will find many doc-

*Read at the 26th annual meeting of the North Dakota State Medical Association at Minot, May 7 and 8, 1913

tors who, when called in consultation, will do things which tend to shake the patient's confidence in the family physician. I know of an instance where a consultant prescribed asparin in capsules where it formerly was given in powders. You all know the consultant who lets it be whispered around town that had he been called sooner, conditions might be different. It is very easy for the doctor called in consultation to assume an air of extreme importance. In examination of the patient he can do a great many things that are unnecessary, things he is fairly certain the other physician has not done, and are of no value in the particular case, except to leave the impression that the home doctor did not go into conditions as thoroughly as he should. It is at times somewhat humiliating to have the consultant relate before the patient and relatives how many such cases he has seen and treated and what fine success he has had, when the local physician has probably not had a similar case, and your patient and his relatives know it. The consultant is only supposed to see the patient with the regularly employed doctor, but how many times are not hints thrown out to the effect that the patient would do better if he (the consultant) had the case in charge.

We have a code of medical ethics, but do we pretend to practise what we preach? And, if not, why not? Does this code expect too much from us and does it require the impossible? On the other hand, do we ignore a code which is only just and requires of us nothing but what we ought to do? To pretend to be ethical and to advocate medical ethics, and then do the things which will not bear investigation results disastrously. The public sneer and laugh at our professed ethics and do not hesitate to ask us to do the unethical. To use a vulgar term, we are not supposed to steal cases from other doctors, but it is done so often that the public quite commonly regard it as proper, and change doctors without notifying the first or informing the second of such changes. Quite often they try to keep each doctor from learning that the other has seen the patient. A doctor was once asked to see another doctor's patient, but was requested to "sneak down the alley after dark, so it would not be known." At times you are requested "not to let Dr. —— know you were here," or "he does not know we called you." At times when you refuse to go to the other man's patient unless he is present you are frankly told that a consultation is not what is wanted, that your opinion is wanted, and that they cannot get it if you have a chance to talk it over with the other doctor, that they must get you, one at the time, and not give you a chance to get together to frame up. We have trained the public to be on guard for such things. In dealing with them I hold that they do not ask of us what we are not willing to do. If, as a profession, we are all ethical men, the individual will not be asked to do the unethical. For instance, if there were no abortionists, you and I would not be called upon to regulate the size of the family.

To have a code of ethics which we do not intend or pretend to follow, I believe is detrimental to the medical profession. Do not the various branches of quackery have their origin and get their first incentive from our unprofessional conduct? A chronic who goes from one to the other of our "regulars," soon learns that our ethics are so badly twisted and out shape that quite often, disgusted with us and our methods, he falls prey to this or that new science (?). The people's confidence in the medical profession is shaken, and we suffer because of this strife among ourselves. If we "were right" toward each other the quack would have a competition altogether too keen for him to withstand. As it is, he very often has the gold mine for which we are so eagerly looking. There are many things we individually cannot do, which collectively could easily be accomplished. Could the medical men of this association be induced to live up to our ethical code and follow its motto (Do unto others as you would have others do to you), we could make North Dakota the greatest medical center of the world. This cannot be accomplished unless we get together and all have the same end in view, namely, the welfare of the patient.

The public regard us as a body of fighters, and justly so. Quite often you find doctors in the same town are not on speaking terms. If you call on a doctor in a distant town he will frequently tell you all the bad qualities of his competitor in a very short time. If you meet a doctor from another community, he will quite commonly tell you he could do so and so if he had the right kind of competition. People are aware of all of this, and can we make them believe that it is all for the welfare of the sick? If our ethics are to remain as a dead letter, we had better do away with them and let each man scramble for business as best he can. If the volume of business that we do and the amount of money we make, is to be the main issue, let us not pretend that it is otherwise. Do

not misunderstand. The financial side of our practice is an important one to most of us and by no means to be set aside. But I can see no financial crisis but rather a financial gain by living a little closer to the motto, "Do unto others as you would have them do unto you." Let us strive to maintain the dignity of our profession, aim to do the best that can be done for those who suffer, treat our brother physician with respect, and endeavor to have him feel that the same is expected of him. If this is more universally done we shall all profit by the effort.

DISCUSSION

Dr. L. H. Labbitt (Enderlin): Medical ethics is, without doubt, a subject we are all more or less interested in, and I think we all agree that the principles of medical ethics as laid down by the House of Delegates of the A. M. A. is as good a code theoretically as we could have. We all realize the impracticability of making a set of rules for a body of business men to govern themselves by in their relations with each other and with their several communities, and if our profession did not have a business side, and if our business side was not of so much importance to us, we should not need a code of ethics.

The question hinges too closely on the matter of personality, and any rule laid down must necessarily embrace the principles every man, if he be a gentleman, would unconsciously have. To make a set of rules a perfect success means that every man to whom the rules are to apply must be a gentleman and be willing to treat every competitor as a gentleman, even under adverse and trying circumstances; but, since we differ individually so widely in ideals and ideas, principles and practices, the interpreting of rules will vary just as widely and the disregard of rules will occur just as often as it does now. We cannot change human nature or even alter it after the age at which we must meet it.

The only way to get at the bottom of the question of ethics is to encourage the entrance into the profession of men with the finer sense of responsibility to each other and to the community—men whose training is more liable to make them better professional men. This may look rather impractical, but I think we can already see steps taken that insure this much-desired result, for the standards of medical education are being raised all along the line. Many of the poorer schools are already closed and the graduates of the commercial schools are meeting with discouragement that will not tend to encourage others to enter the profession for the "easy money" dreamed of. If they do enter and go through the rigid preparatory training it will make better men of them than they would have been under the old system, when the ideals were not high, the course lax, and the association in the class room anything but encouraging to good scholarship.

Just as the senate commission decided that the one test of an individual best calculated to be a fair index of his intelligence was the literacy test, so must the training of a medical man be the best index as to what that man should be to his profession. You will find that the poorly trained, worldly man is, as a rule, the one who drifts into illegitimate practices, plays upon the credulity and ignorance of the laity, and has much to do in keeping alive the superstitions and mysteries of medicine. That is all right for the personal ethics of our profession, but we have broader medical ethics, national problems of ethics that confront us.. If we are to take our place among the progressive bodies of the country, and if we are really interested in the communities in which we live, we must throw off this false cloak of professional modesty and openly work for the measures that will bring about the much-desired result. A national bureau of health is an essential feature in giving the people the benefit of the best medical knowledge of the day. Sanitary science and preventive medicine are far from being in a satisfactory state. Education of the people is but just begun. The A. M. A. is doing its share toward this result by their lecture bureau. Many progressive magazines and newspapers are doing their part, if in no other way than by cleaning up the kind of advertising carried, but to get perfect results there must be complete co-operation among the smaller communities, such as we represent. Let us stop and realize that this country is made up of smaller communities, such as those from which we come, and we can gauge the progress of education along these lines by the intelligence and understanding reflected in the smaller communities and their demand for more light and progressive legislation. The demand must come from the people.

When the medical profession, as a whole, realize their responsibility in the matter, medical ethics will not be necessary. Education of the laity will clear up any doubts as to our motives, and medicine will again occupy and deserve the place of respect due an organization of high ideals and noble purposes.

The President: I would like to say a very few words on the question, and that is, while medical ethics are supposed to relate to medical men, while medical men are supposed to be ethical, we find even medical men hiding behind hospitals and advertising their hospitals, advertising everything that goes and comes, and everything in the line of treatment, saying that a certain hospital is following a certain line of treatment, and that, if you want that treatment, you should go to that particular hospital, and go at a particular time; and they go on in that way and then sign the hospital name to it, when they might just as well sign the name of the surgeon or the physician in charge. This is one line of advertising that is all too frequent, and it seems to me that it is one line of advertising that we want to look to and stamp out as absolutely unethical.

Dr. Paulson (closing the discussion): I looked for a little more discussion of medical ethics. The idea of my paper was not to go into the subject exhaustively; but I have never been to a meeting where the subject was considered, and yet in private conversation we often find that the topic is a live one. When we meet our brother physicians from adjoining or distant towns, this or that medical subject is not nearly as often considered as the topic of how much work we do and how we do it, and how this man conducts his practice and that man conducts his.

What I wanted to bring out was the fact that, while we consider ourselves as members of an important profession, and when we get together we consider our-

selves as quite a dignified body. The question is, does the public consider us the same? We know that very often they do not, and we know that very often we are accused of things of which we are entirely innocent, and quite often the people are indignant when we refuse to do things that are asked of us. Now, I believe that it is largely our own fault. We all want to be ethical practitioners, and if we treat each other as we expect to be treated, and treat our patients and the public accordingly, these things will die out. Where we come in contact with each other in small communities, where there are probably one or two doctors in the town, or where we come in contact with the doctor in an adjoining town, our relations are often quite unpleasant, and this is particularly disagreeable to the patient. You usually go when called, and find after you get there that the patient has been sick for a number of days or weeks, and also find that some other doctor has been in charge of the case, but you go thinking that you are the man that was first called. The other man has not been discharged, he does not know you are called, does not know anything about the changes that are made, and at times if you are not particular to ask whether some other doctor has seen the patient you are not informed that one has been there. Now, I believe a great deal of this could be prevented, if the public had the understanding that when we are called into another man's case he at least is to be dismissed or informed of our presence. We do not find that the public, as a rule, attempts to dictate to us what we are supposed to do and what we are not supposed to do, unless they are by us trained to do so. These are some of the unpleasant things we have to contend with, especially in the smaller communities, possibly in the cities consultations are more agreeable, but in this western, newer country, probably a large percentage of the cases of consultations, the cases that should be consultations, turn out unpleasantly, not only for ourselves, but also for the patient, because we are too willing to take over the other doctor's cases. One thing that I have been considering for some little time is the fact that while we have practitioners who are not of the same school as we ourselves, and while we discuss methods and means to regulate their practice, I think we should bear in mind that, maybe, we ourselves by our conduct just opened up a way for these practitioners to come in and take a share of the work that by rights belongs to ourselves, and, maybe, while we are attempting to regulate their practice that we are just encouraging them by not doing the things that we pretend to do ourselves.

POST-OPERATIVE CONDITIONS*

By B. C. Murdy, M. D.

ABERDEEN, S. D.

My subject as chosen is post-operative conditions. I had intended at the time I began considering this paper, to write of simple variations from the normal convalescence, as well as complications and sequelæ. I found that my paper began to assume such gigantic proportions that I must needs concentrate, and not undertake to cover the whole field of post-operative conditions. Therefore, I am herein undertaking merely to mention some of the conditions to which my personal attention has been called,—conditions which have presented in the early post-operative period, and I shall not elaborate upon diagnosis or treatment. I make special reference to abdominal surgery.

As a basis for this paper I mention, briefly, the mode of preparation of the patient. If the personal history is simple, and constipation is not apparent, a very simple preparation may suffice to put the patient in good shape to undergo quite a severe operation. I mention the condition of the bowels and the need of clearing them before operation, not only because of mechanical disturbances, but because autotoxines abound in a constipated and sluggish bowel which are capable of producing very disagreeable conditions.

It is quite obvious, however, that the more carefully the patient is examined and the physical status charted, and the more careful the preparation before operation, of whatever nature, the less frequent will disagreeable and baffling post-operative complications arise. If the patient has a cold and a few râles in the lung, the case not being an emergency case, a few days to clear up the cold may lower our mortality-rate that much. If the history is complex, and constipation is apparent, more time is necessary to study the case, and make proper clinical and laboratory tests, as well as to prepare the patient, and he or she should not be hurried to the operating-room until a definite knowledge of the case is obtained, or until it is evident that such knowledge can be obtained in no other manner. Meanwhile a nourishing diet for the weak and a restricted one for the plethoric or adipose individual, together with appropiate laxatives to clear the bowels, will be indicated. However, cases will come to the surgeon which must be operated upon immediately, if operation is to afford any relief or benefit, and operative and post-operative difficulties will be great, and the mortality of these

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cases will be far above those which have had appropriate pre-operative treatment, not only because of the greater severity of the case in hand, but also because of non-preparation.

It is important for a patient to be in the hospital at least twelve hours, better, twenty-four hours, before he is subjected to an operation, so that he may become accustomed to his surroundings and obtain a sense of quiet and rest.

Psychotherapy has a distinct place in surgery, and if properly applied is capable of producing beautiful results. The patients may have their attention directed to the beautiful way they are going to take the anesthetic, and incidentally may be told the proper manner of taking it.

Other helpful suggestions may be added and should be often repeated.

I will not take up the anesthetic, though this is a very important phase and has to do directly with the post-operative period.

Just a word or two about the abdominal operation: Thoroughness is desired, raw surfaces should be covered, kinks and constrictions and adhesions relieved, and traumatised peritoneum protected. In septic cases, downhill drainage with large rubber tubes is the aim. Our experience with cigarette or other capillary drainage has not been satisfactory. In females with pelvic contamination, drainage may be carried through the cul-de-sac and the vagina. In males drainage-tubes may be carried deep into the pelvis with the patient in Fowler's position and on his side. In either case where the infection is well walled off and the pelvis is not contaminated, the patient may be turned to the side on a flat bed with free drainage for twenty-four hours. In placing drainage in the abdominal cavity, care must be taken to get into the lowest pocket so that a loop of intestine does not retain a pocket of pus or infection, and where pelvic or intra-abdominal drain is necessary the omentum, where possible, should be tucked in around the tubes to prevent adhesions forming to the small bowel, which might cause subsequent distress or peril to the patient. The small bowel is very prone to kinks and constrictions wherever brought in contact with drainage- tubes. The omentum thus serves a double purpose, as it may in itself absorb and destroy considerable pus, as well as protect contiguous visci from adhesions.

In any case where drainage is indicated it should be very free, as two or three tubes, the size of a finger, for a few hours, and then part of the tubes should be removed. Tubes may be started on the second or third day and very gradually be brought to the surface. If drawn out too fast, a pocket of infection or pus may be left behind to cause trouble. Also drainage should be avoided where possible, because in any case there is some danger from this mechanical interference.

It has been the experience of every surgeon here, and the others of you know also, that certain cases which gave promise of a perfect convalescence, for one reason or another, developed unexpected trouble. In some it was a rapid pulse, or an elevated temperature, or a skin rash, or a cough, or constipation, or diarrhea, or nervousness, or mania. Others have had an undue amount of pain, tenderness, paresthesia, nausea, etc. Then some of our cases have developed acute obstruction of the bowel, and a certain proportion of our cases die suddenly of embolism. Certain of these conditions develop as a result of inherent qualities within the patient, others as a result of an oversight on the part of the surgeon, before or during the operation, and still others develop in spite of everything that the surgeon might do to avoid them.

Post-operative treatment must of necessity be considered supplemental to operative and pre-operative treatment, since it is a continuation of these phases in the program. Following an operation, and I might say from the time the surgeon takes his last stitch, the post-operative period is announced. Treatment may be begun before the patient is removed from the operating-table, and such is indicated when shock is apparent, as wherein there has been great loss of blood. Strychnine or camphorated oil, hypodermically, saline per bowel, or hypodermoclysis or intravenously, or transfusion of blood may be employed to stimulate and restore the tension in the blood-vessels. The saline solution is of great importance, and enough attention is not usually paid to this matter. Concentrated or hyperisotonic solutions cause crenation of corpuscles and a draining of fluid from the blood-vessels. Dilute or hyperisotonic solutions tend to cause laking of the blood, and a destruction of red corpuscles in the circulation. It is evident that this matter is important in whatever manner it is given. When given per bowel saline solution should be of the same consistency as for hypodermoclysis, so that the osmosis will be free. If given as a continuous rectal saline, it must be given very slowly to be retained, and should be withheld or given in divided portions when it ceases to be so

retained. When it is thought that the patient may be put to bed, the same should be accomplished with as little jar as possible to avoid further shock. Once in bed, further stimulation, together with heat, may be employed, if necessary, to bring the patient back to as near the normal state as possible. Recovery from the anesthetic should not be longer than one-half hour, and most patients will be partially awake by the time they return to bed.

The immediate pain may be controlled by small divided doses of morphine, as an eighth grain. Thirst is annoying and may be allayed by small amounts of water given at frequent intervals. Nausea is at times very distressing, and if severe may be treated by lavage. Acute dilatation of the stomach is rare, and is diagnosed by the vomiting of large quantities of fluid at frequent intervals. It is treated by continuous lavage.

If the operation is a clean one, the subsequent care of the patient will be reduced to the minimum, i. e., control of pain, regulation of diet and bowels, and dressings. There will be some pain in most any case for a few days, due to the collection of gas. Inserting the rectal tube, laxative enemas, and, in extreme cases, morphine, one-sixth gr., will relieve. Morphine should be used with extreme caution in cases where there is probability of prolongation of the pain. Diet should be liquid for about three days. The bowels should be made to move if possible each day, using the enema for the first three or four days. Evacuation of the bladder should be carefully attended to during the first two days. Dressing, in clean cases, will be with bismuth subiodide, dry gauze, and a roller bandage left five or six days without disturbing unless the chart indicates possibility of systemic trouble.

In infected cases of the abdomen, such as result from a perforated appendix, infected gall-bladder, pyosalpinx, or infection of any portion of the abdominal cavity, drainage will be placed as I mentioned above. Pain, diet, and bowels also will be cared for as above. Dressings here are better moist and frequently changed, one to two times daily. Position of patient in bed depends also on age and kind of operative interference. Elderly persons should be propped up high in bed to prevent the development of ether or hypostatic pneumonia, and the same position is required following operation for umbilical hernia to relax the abdominal muscles.

Where considerable manipulation is carried out within the abdomen, the patient may be turned in bed from one side to the other frequently during the first six to eight hours, to prevent adhesions. On the day following an operation, even in a clean case, there may be quite a rise of temperature up to 101°, and an increased pulse, together with increased thirst and some nausea. These symptoms usually subside within two days, and the condition is called aseptic fever, and is said to be due to the absorption of fibrin ferment formed from the disintegrated blood and tissue at the wound's site.

Following this period, increased pulse and elevated temperature should lead to the suspicion of sepsis, and an exploration of the wound. The wound edges may be found puffed, and on prying the edges apart serum or seropus may escape, showing that some degree of infection exists. If the wound is innocent, a general physical examination should be made. Leucocytosis will be present in infected cases. Skin rashes may occur at any time, with or without systemic symptoms. A differential diagnosis, as well as a careful consideration of the kinds of drugs being used, either internally or externally at the time. will be necessary to establish the character of the rash.

The conditions which occur most frequently during the post-operative period to engage one's serious attention, are infection, either local as mentioned, or at some distant point, as a secondary infection; such as secondary infection of the middle ear or arthritis of any of the joints, empyema, or abscess of the liver or kidney, or of most any organ or tissue, and each one of these conditions presents a picture which is typical in some of the symptoms. The point of pain and tenderness is often a guide. Embolism or thrombosis of the pelvis or femoral veins may occur.

Beside septic infection, epidemic fevers have to be reckoned with at times. The character of the fever curve and rash in typhoid, together with the result of the Widal reaction, serve to identify that affection. The rash, coryza, cough, and conjunctivitis identify measles. Sore throat, fever, and rash identify scarlet fever, but in surgical cases care in differentiating it from septic fever and rash is necessary and at times quite difficult. Secondary infection of the parotid gland is at times difficult to differentiate from the epidemic parotiditis. Chicken-pox and small-pox are characteristic in their rash, but where we are dealing with a la grippe surgical affection, such as the la grippe infection of the appendix,

the backache does not serve as a determining factor. Then we must always remember that the rashes of autointoxication are so varied that they may simulate any one or all of the other rashes.

I wish at this point to report a case which falls in line with this paper.

Arthur A., aged 16, Norwegian. Family and personal history, negative. He was taken with a severe attack of appendicitis, operated on by Dr. W., and drainage was established and continued for two weeks, at which time symptoms of obstruction of the bowels appeared and became complete. The patient entered St. Luke's at Aberdeen, and operation revealed a most appalling matting of the small bowels in the region of the drainage. In loosening the small bowels several rents occurred, and one complete anastomosis was necessary. The patient was sewed up with drainage. His condition was critical, following the operation, but he gradually recovered from the shock, and the bowels moved freely for a number of days, only to become dilated and partially paralyzed again. No fecal matter and very little flatus was passed during the ensuing two days, by which time the patient's condition was again becoming alarming. Under local anesthesia a loop of the dilated small bowel was tacked to the peritoneum in the left lower quadrant of the abdomen. Eight hours later this bowel was opened, establishing an artificial anus. The abdomen flattened and at the end of four days the bowels moved per vias naturales. The artificial opening closed, and the boy returned home two weeks later, and has done well since.

DISCUSSION

Dr. J. N. Warren (Sioux City, Iowa): Upon being asked to open the discussion, Dr. Warren said: The title of this paper is rather misleading, hence, it is somewhat difficult to discuss this paper without deviating from the line he takes up. We know that no matter what operative procedure we may adopt in these cases, we may immediately expect a certain line of reaction to a normal condition. When this deviates, then we have more post-operative complications, which may or may not be of a serious nature. These complications are most frequently met with in abdominal surgery. In other locations serious complications arise, which threaten or may take the life of the patient. In the post-operative care of a patient we should consider the natural forces of resistance incident to that patient, and if we have a carefully recorded history and a properly conducted operation, we can, in a measure, determine what that patient will do after the operation. Whenever they deviate from that, we have a complication to deal with, and each one will have to be handled as to the necessities of the case or the kind of complication present. If we have an amount of shock, the ordinary measures which are known to everyone should be instituted, and we know that we always have some degree of shock; and the proper preparation of the patient will very often mitigate the amount of shock, which will be induced by the operative procedure.

So many things arise in a post-operative case that it would be impossible to consider them in a five-minute discussion.

Dr. E. Klaveness (Sioux Falls): I rise only to express my delight and pleasure in having listened for the second time to a very able and instructive paper by the Assistant Superintendent of the Insane Asylum, and I wish to compliment him on the extensive clinical material that is placed at his disposal. In the years gone by we have not had the opportunity to hear very much about that large clinical material, and it is very gratifying that he has made use of it in giving us these reports. Consequently, I wish to emphasize the timeliness of the paper on a pre-operative test, which is easily carried out and exceedingly valuable.

Drs. Adams and Eyman have given us a very instructive and interesting paper, and they are to be congratulated on it. We are to be congratulated further on the very excellent paper on the treatment of post-operative conditions. I wish to compliment both writers.

Dr. S. M. Hohf (Yankton): I am heartily in favor of this test. I have used it, and I can vouch for its quality. The instrument is a valuable one if properly used.

In post-operative treatment there are practically two conditions to be considered in these acute and chronic cases. In the acute cases, as you all know, the vitality of these patients is not very much diminished, and post-operative care is necessarily not so strenuous nor so actively observed, but in the chronic cases, where the vitality is reduced, as, for instance, in pus cases, a very competent nurse is an absolute necessity. She is worth more, in a sense, in many cases than the real operation itself, because life itself often hinges on the post-operative care that these patients get.

I wish to sound a note of warning with reference to the use of saline infusion. It is possible with normal salt solution, six-tenths per cent, to give an over-dose. I have seen a case where hydrops of the general system appeared. The extremities swelled, urinary function was diminished, and I believe it was due to the large amount of sodium chloride. This should be guarded against. When a quart or a 1,000 c.c. are given every two or three hours you can imagine the amount of salt given, if continued for two or three days.

As to drainage: It is my practice to drain for a shorter period of time. Our experience differs in this regard. Drainage is useful only in the first twenty-four or forty-eight hours. I introduce a large tube, one with a lumen an inch in diameter, by means of which I am enabled to obtain ample and free drainage very quickly and easily, and can remove the tube early. It is rare now that a drainage-tube is maintained in the abdominal cavity for more than three or four days in my practice. I have observed this, that the longer you maintain the drainage, the greater the possibility of carrying infection down the tube. You can do this by keeping the drainage-tube in too long, and if the tube is ample in size, is inserted carefully, and removed early, you will reduce the complications that may develop following prolonged drainage.

Dr. B. C. Murdy (closing the discussion): I expected some criticism with regard to the title of my paper. I found, after I started it, that I was to be restricted as to time, and I felt something was necessary about the preparation or the operation, and it would have taken quite a long time to have gone into details of all post-operative conditions that are met with. The only thing I wanted to emphasize was this: The patient very often, following an operation, is not watched carefully and closely enough by the attending surgeon. The operation is done, and a competent nurse is a fine thing, and many times the nurse can go to the doctor and inform him of impending trouble; but, I think, the doctor or the attending surgeon should see the patient very often.

I was interested in what Dr. Hohf said about saline transfusion, and I heartily agree with him that one should exercise a great amount of care in regard to it, but I do not believe we should dilute our solutions. I think the physiologic salt solution should be used, and when the vessels reach the required tension we should cease.

UTILITY OF PUBLIC HEALTH WORK*

By F. R. Smyth, M. D.
Commissioner of Public Health
BISMARCK, N. D.

Public-health organization, as a branch of sanitary science, has been from its inception almost entirely in the hands of the medical profession. It is to the credit of that profession that work which, in its results, has been detrimental to the pecuniary interests of its members, should have made the progress and achieved the results that it has.

The complexity of modern life has had its effect on the medical profession, and, although medicine itself is still one of the learned professions, the practice is a matter of business. This is probably unavoidable, and is not particularly to be regretted. The mere fact that a doctor is a good business man and good financier is not at all incompatible with professional skill and progress.

In England, where the ethics of the profession are on such a high plane that a consulting physician or surgeon cannot have even a door or window sign with his office hours or specialty displayed, and where fellows of certain medical associations cannot sue for fees, but are supposed, in theory at least, to accept whatever the patient offers as an honorarium, the question of forming a trade-union for the medical profession has been seriously discussed.

It would certainly be a blessing to members of our profession if some of the advantages of trades-unionism could be adopted. Whoever heard of a member of a trade-union being on duty twenty-four hours a day, Sundays and week days, working for the same pay on Sundays and holidays, or working overtime without extra remuneration?

What a relief it would be for the tired and overworked practitioner to be able to say, I would like to go and do all I can for the patient, but our union does not allow us to work more than eight hours at a stretch!

Fancy the snap of being a walking delegate and ordering out all the doctors in a community!

That business methods have rendered competition keener, and that the strife for more business has unfitted the active practitioner for public-health work, is no reflection on the honesty or ability of that practitioner.

A physician who devoted his time to keeping people well or who in case of sickness assured his patient that a well-regulated diet, exercise, and suitable environment would soon restore him to health, might have the satisfaction of feeling that he was a public benefactor, but his success as a practitioner would be practically nil, and his honesty would spell financial ruin to himself. People no more want the simple life in sickness than in other walks of life. It has become very fashionable, in newspapers, magazines, books, and on the stage and platform, to picture medical men as ghouls, who by undue influence scare patients into hospitals where they perform uncalled for operations for the sake of big fees. As a matter of fact, every doctor knows that if he were to perform the operations that patients demand, he would be kept busy with surgical work all the time. Even the practitioners of the so-called new schools, who so widely proclaim that by their system of "drugless" and "knifeless" treatment they can cure where others fail, have found that the public demands operations, and they have sought and obtained legislation enabling them to use the knife.

No doubt, in the sometimes mad rush for business, objectionable practices have crept in that not only bring the members of our profession

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into disrepute but are inimical to the public health. In localities where the paying of commissions, splitting fees, employing runners on trains or at railway stations, sending beginners out as feeders, etc., prevail, the death-rate is always high, and there is usually an antagonism between the members of the profession that gives an opening of which apostles of different cults are not slow to take advantage.

Now, although the public, that is, individual members of the public, are willing to pay big fees for medical attendance and rather glory in the wonderful and hitherto unheard-of complications that have arisen in their often protracted and frequently recurring ailments, yet, what we may call the organized public demand something better. Industrial corporations, municipalities, states, and nations have found out by actual experience that sickness and death not only produce physical and mental distress, but are a source of waste, deterioration, and financial loss.

Insurance companies that a few years ago were satisfied if the yearly loss amongst their risks did not exceed the mortality rates calculated on the experience of English cities a hundred years ago, are now urging the reduction of these rates. It will be but a short time before the leading insurance companies map out the different communities in the country according to their death-rates, as fire-insurance companies do with their fire risks.

Railroad companies and railroad contractors now demand sanitary precautions in construction camps and spend large sums in instructing employes on methods of preventing disease.

Manufacturing corporations are taking an active interest in the welfare of their employes and provide every means in their establishments to promote the comfort and health of the men, women and children employed by them.

Money is not spent and care taken in this work of preventing disease and preserving the health of employes from a philanthropic view, but as a matter of economy. Healthy and contented people will do more work and increase the dividends.

As in business corporations, so in municipalities. The city with a healthy, contented people and a low death-rate has an asset that exceeds any mere property valuation. Cities are coming to realize this although more slowly than in the case of business institutions.

For the business—for it is a business—of conserving the health of the people and promoting a low death-rate a class of officials known as health officers exists in every state and in most counties and cities. To get results from the work of such health officers and health boards it is just as necessary to keep books as it is in a business corporation.

A health officer may issue a glowing report, telling what a beautiful city he represents; what a fine water supply they have; how excellent a system of milk inspection is in force; what advanced methods they have of handling sewage and other waste products, and then by a little juggling with population and a fallacious method of dividing deaths into resident and non-resident, show a death-rate of less than half the real rate. This may impose on some people, but will be immediately detected by any expert statistician and bring discredit on the community. It cannot be too well understood that the death-rate of a community is the actual number of deaths in proportion to the population in a given time. This is usually stated as the number of deaths per thousand population in a year.

It is of course often possible to explain that a high death-rate is not due to unhealthy conditions in a particular community, but that does not change the actual death-rate.

The correct and scientific keeping of vital statistics is not only of importance as a record of actual deaths and births, which are usually included, but has been found to lower the death-rate of communities.

Dr. Watson S. Rankin, state health officer of North Carolina, in a paper read before the association of life insurance presidents, says, "Applied vital statistics is the most essential and powerful remedy for the improvement of the health of social organisms, for bringing about sanitary reform, for preventing disease, for postponing death, and for adding years to the duration of the average life that we possess."

Dr. J. Grassick, until lately health officer of this state, has frequently pointed out the advantages that would accrue to the public health service from the collection of vital statistics.

The state of North Dakota has had a vital-statistics law on its statute books for the past six years. This law was not drawn up for the benefit of any particular individuals or locality, but it is the model law prepared by the United States Bureau of Vital Statistics and approved by the American Medical and the American Public Health Associations. The vital-statistics law, at the time it was adopted by this state, was not

an experiment, but had been tried and found successful in a large number of states.

The bill for the law passed the legislature without opposition, was signed by the governor, and has had, at all times, the support of the press and the people of the state. Notwithstanding this, the state officials have refused or neglected to establish the Bureau of Vital Statistics at the State Capitol, as provided by the law (Chap. 270, Laws of 1907) or in other ways to enforce the law.

The result of this open contempt for the most important of our health laws has been that, for the past six years, the death-rate of our principal cities has greatly increased and in some cases more than doubled.

It is a standing proof of the cheapness of and contempt for human life that officials charged with the enforcement of law should be responsible for more widows and orphans than all the law-breakers whom they are supposed to prosecute and punish.

As an evidence of what the enforcement of the vital-statistics law will do to reduce mortality, the experience of some of our cities can be quoted.

In 1910, which was probably high-water mark for death-rates in this state, the death-rates of the six principal cities of the state, reporting regularly, were given in the report of the public health committee of this Association. This report, which also gave the rates of cities in other states and countries, was copied in many newspapers and given considerable publicity.

The following table shows the comparative rates in the years 1910 and 1912:

City	1910	1912	Percent. Decrease	Percent. Increase
Bismarck	20.0	15.9	20.1	
Fargo	19.5	16.2	12.4	
Grand Forks	11.1	14.0		26.1
Jamestown	14.6	24.7		69.1
Mandan	14.5	8.0	44.8	
Valley City	17.9	14.5	18.9	

In four of the cities there is a marked reduction in the death-rate, which, however, is almost offset by the increase in two others.

The rate in cities in other states and countries, is shown in the following table:

Death-rates per 1,000 Population per Annum
U. S. Reports, 1910

Washington, D. C.	19.6	Seattle	10.1
New York	16.0	London, England	12.7
Chicago	15.1	Paris, France	16.7
St. Paul	11.9	Berlin, Germany	14.7
Minneapolis	12.3	Vienna, Austria	15.8

The comparison with neighboring states, where the vital-statistics law is enforced, is still more marked, as is here shown:

Average Death-rate in Six Largest Cities in Minnesota, North Dakota, and Montana

Minnesota	North Dakota	Montana
12.8	15.8	14.8

Now, any one with the slightest knowledge of hygiene and demography would know that a new and agricultural state like North Dakota should have a lower death-rate than an older and manufacturing state like Minnesota or a mining state like Montana.

It is true that the state health officer has done probably what he could by having blank certificates printed and issued to local registrars, and by issuing a bulletin giving returns as reported to him. There is no check on the certificates as signed by physicians, and as a result, even in cities where all deaths are registered and reported, 90 per cent of the certificates are incomplete or improperly filled out, and in too many cases apparently intended to conceal rather than to furnish the true cause of death.

A vital-statistics law is worthless unless the penalties provided by the law are enforced for non-compliance with the provisions of the law. At present it is a matter of choice with each community as to whether any of the provisions of the law are complied with or not.

Members of the medical profession are justly proud of the discoveries that have been made and of the heroism of those who have offered up their lives that malaria, yellow fever, bubonic plague, and kindred pestilences should be eradicated from the face of the earth.

Is there a gathering of medical men where the work of Col. Gorgas is not extolled? And yet what credit would Col. Gorgas or other prominent sanitarians have received if they had not been able to demonstrate that their work had been followed by beneficial results in the way of reduced death-rates?

The death-rate in the Canal Zone, including the cities of Panama and Colon, was, in 1911, 21 per thousand.

If natives and colored people are excluded the rate is 7 per thousand, which is less than half the average of our North Dakota cities. And

this in what a few years ago was the unhealthiest spot on the American continent.

What has been accomplished in the Canal Zone, in Cuba, in our southern states, and, in fact, all over the civilized world, can be done here. People are kept healthy, the duration of life increased, and the death-rate lowered wherever efficient and active health officials have control.

In this state we have probably more and better machinery for public-health work than most states, and we should be able to make a good showing.

The State Board of Health, the Public Health Laboratory, the State Food Commissioner, the State Live-Stock Sanitary Board and the State Dairy Commission are all working along sanitary lines, and, in addition, the U. S. Bureau of Animal Industry has a chief inspector and a staff of assistants always willing to help state and local officials.

In addition to the national and state officials, each county and city has a board of health or a health officer, so that there is no lack of machinery and the gross amount of money appropriated for public-health work should bring some other result than a high death-rate.

Probably one of the most detrimental features of public-health work has been the custom of expecting a health officer to act as a sanitary policeman. Not only is it unnecessary for the public health, but it interferes with the efficiency of a health officer to have him take sides in a dispute between neighbors as to the responsibility for ashes, manure, dead animals, etc., in backyards, alleys, or vacant lots. A health officer should be looked upon as one whose mission it is to help everyone; to promote comfort and happiness. Where he is viewed with suspicion, as one who is likely to have people hauled off to jail or fined for something they have been in the habit of doing all their lives and in which they can see no harm, it is impossible to get their cooperation in even what is for their own good.

For the same reason, quarantining of families with contagious diseases should be done in a common-sense manner. The shutting up of healthy children with infected members of the family and forbidding them to go out in the open air, is nothing less than barbarous and usually defeats its purpose. Isolation of the patient should take the place of quarantine wherever possible, with as little interference as possible with the bread-winners of the family.

The evil of political appointments in health work is often dwelt upon and blamed for the general inefficiency of the service. But there is no more reason why a man's politics should interfere with his efficiency as a health officer than his religion or creed should.

Let every health officer remember that his duty is to the people and not to political party or boss, and he will have no reason to regret that political changes invest him with, or remove him from, office.

Prevention is the keynote of effective health work, and health officers have very little to do with treatment. For this reason they do not come in competition with practicing physicians, but really relieve them of a great deal of responsibility with regard to the sanitary precautions in contagious disease.

Public-health work is certainly not remunerative to those engaged in it, but at the same time it is not compulsory, and when a health officer finds that he cannot afford to perform the duties of the office to which he has been appointed, it is time for him to resign.

Failure to protect the public health and lower the death-rate should be sufficient grounds for removing any health officer, irrespective of politics or other consideration.

DISCUSSION

Dr. Stickney (Dickinson): In discussing papers of the character of the one just presented we are often confronted with the perplexing fact that the subject has been so thoroughly gone into by the principal in the discussion that only a barren field is left for those who follow him. I did not have an opportunity to examine Dr. Smythe's paper until a few minutes before the morning session began, and so am prepared to discuss it only in so far as it has to do with the synopsis as set forth in the printed program. That the bookkeeping of the vital statistics of the state is faulty and furnishes conclusions which are at variance with the existing facts, no one who has given the matter even casual attention can deny. For instance from the bulletin sent out by the North Dakota State Board of Health for April, 1913, it would appear that no deaths occurred in Griggs, Oliver, Hettinger, Sheridan, or Stark Counties during this month. These five counties for the same month report an aggregate of forty-eight births. To my positive knowledge there were deaths in Stark County during this month, and it would, to say the least, be a remarkable coincidence if no deaths occurred in the other four. This state of affairs is deplorable and has a tendency to place the state each year further away from the border-line of the registration area as established by the government standard. That this condition exists in our state is not, in my opinion, due to any inadequacy in the existing health laws, nor is it the fault of the Superintendent of the State Board of Health. It seems to me that it should, rather, be placed

at the door of the state legislature in its failure to furnish sufficient appropriation to properly carry on the work.

The wealth of any nation is in its inhabitants, and the wealth of any state is in the people of the state. It is not only the duty of the state to look after the health of its people from a moral standpoint, but it is also its duty from a purely economic standpoint. Allowing that a single death occurs in the state each year which may be attributed to the failure of the proper enforcement of the health laws, computed on the commercial value of an average human life, the state will have lost thereby a value in money sufficient to pay a health officer a salary commensurate with the requirements of his office. Reason proclaims that the Superintendent of Public Health in this state, to properly perform the duties of his office, must be on his job every working hour of the day for three hundred and sixty-five days in the year. This he should do, and for this he should receive a reasonable compensation.

Dr. G. Golseth (Jamestown): With a death-rate of 24.7 staring us in the face in Jamestown, I wish to make a few remarks in explanation. The census, when it was taken for 1912, I think underestimated the population of Jamestown by about two thousand. They figured on about 4,500 people, where it should have been 6,500, and that would cut the death-rate down one-third. And the second point: Although I cannot speak positively about it, I understand that all deaths at the State Hospital for the Insane, if the bodies are shipped out of the town, are recorded in the city, and those that are buried in their own cemetery are reported outside. If Dr. Smith has investigated that, and knows it is not right, why, all right, but that is my understanding, and that is one reason why the death-rate in Jamestown appears so high.

Dr. J. R. Pence (Minot): I think I know why reports have not been made from Minot. It has been the custom here in the city to report all births, deaths and contagious diseases indirectly to the County Auditor. Now, I know that there are a lot of men here who do not report births at all. I heard one man who has practiced here longer than I say that he did not think he ever reported a birth in Minot. There are also a lot of men who report deaths only when they have to do so and only when the body is to be shipped out. So far as contagious diseases are concerned there are times when I have had a good many reports in one month, and the next month I would not have any. I am supposed to report to the City Auditor all that are reported to me as City Health Officer, and the City Auditor is supposed to report them to the County Auditor. I know there are times when there is a great string of blanks following the space given to Minot in the North Dakota State Board of Health Bulletin, and I know absolutely they should not be there, and I think the whole thing is due to the failure of physicians to make the reports.

Dr. A. J. McCannel (Minot): There is one thing I wanted to say in regard to the reporting of births, and that is, under our law it is the next thing to impossible for a man who is doing any country practice to report them. The law provides that births shall be reported to the clerks of the township where they occur, and in the city limits they shall be reported to the auditor, just as Dr. Pence has said. Now, I do not do a great deal of country practice, but I occasionally have a confinement case out in the country, and if you were to ask me today to whom I should report a birth occurring in any township within a radius of twenty miles of Minot, I could not tell you. I do not know how I could find out. I have been reporting practically every birth I have had. In a great many cases I have simply put the slip in an envelop and addressed it to the clerk of a certain township. Sometimes it did not come back to me. Very often it comes back, and goes into my wastebasket. I know the law provides that the County Auditor shall furnish every practicing physician in the county with a list of the township clerks, but that is not done in this county. It was done on one occasion when I was county health officer. I went to the auditor and insisted that he get out a list. He got the list for us a short time before the spring elections were held, which rendered our list of no benefit whatever; the result was that I have been without a list of any kind ever since.

I may be mistaken, but births and deaths should be reported to one or the other of two officers. They should either be reported to the recorder of vital statistics, who is our state health officer, or to the county health officer. We know who these men are, and while they change occasionally we can keep track of the changes, but we cannot be eternally keeping track of the changes of township clerks.

Just one word in regard to the reporting of these births for the benefit of any men to whom it may be of interest. I mentioned this yesterday, and I mention it again today, and that is that the legislature of 1911 put a provision in the law where, I will venture to say, you cannot find it. I ran onto it by accident. They put a provision in the law that in case any doctor has a suit to collect a fee for a confinement case, he cannot collect it unless that birth was reported as provided by law, and it seems to me it is up to us to report our births in self-protection if we have no regard for the rights of the people. I believe it is due to every child that its birth should be recorded, and if we have no regard for the rights of the child we should have at least regard enough for our pocket-book to report the birth, and so prevent a defense that we should find pretty hard to run up against in a suit for fees.

Dr. H. A. Paulson (Flaxton): Our system of reporting is certainly wrong, and, while we are lax, still it is not always our fault. I ran across an instance about a year or two ago, where births had been reported to a certain clerk. I think pretty nearly all the births had been reported, and also all the deaths, the same man being village clerk for three years. He had turned his office over to another man and it was discovered that while he had received the reports he just laid them aside, and that is as far as they went. I have done some investigating since, and I find at least one out of every three village and township clerks throughout the rural districts will do the same thing. This idea of reporting to a man in each little local territory is not satisfactory, and the doctor discovers that while he is reporting diligently his reports are laid aside in some scrapbook in some little rural office, and consequently he is going to be neglectful and stop reporting after a while.

As to the reporting of deaths: That is sometimes more difficult, and these death reports we have to fill out are of such a nature that one cannot often report the death in full, at least unless he can get the information direct from some very near relative. If you have, for instance, a case sixteen or twenty miles out in the country, and the patient finally dies, you are not called out there to verify the fact that the patient is dead. Sometimes you do not know. You simply do not hear anything more from the family and you do not know whether the patient is alive or dead; and you cannot afford to go out there and get the information that is called for in order to report such cases.

Personally, I have made a practice of reporting the death incompletely, giving the name of the person, which you usually know, and the township in which he resides, and if I have no more information as to where he was born, his age, etc., I leave that out. I know a good many physicians who, if they cannot give the complete reports, do not report at all.

Dr. W. H. Bodenstab (Bismarck): Regarding the statement of the former speaker about not being able to get the evidence in the country in favor of the vital statistics law; I wish to give my experience in my twelve years of country practice. I sent a copy of the law to every one of the ministers in the community. The law is very plain and to the effect that no one is allowed to bury a person without a certificate of death. The people knew within a year that they could not bury their dead unless they could furnish to the minister a certificate of death, or, rather, a burial permit. I had no difficulty after that. I think that is the best way to overcome the difficulty. One can notify all the ministers and send them copies of the law. The people will not bury their dead without a minister, and no minister will bury the dead without a permit from the attending physician.

Dr. Blake Lancaster (Crosby): I think there are a number of reasons why it is difficult and hard to get statistical reports in a country practice. Particularly in the case of child-birth, there is such an uproar in the house that no one can give the information wanted. Certainly, they do not know the name of the child, and will hardly ever give you the name. And in case of death, unless you are in direct communication with some relative you cannot get the necessary information. Moreover, in making the report, the work always falls upon the doctor, and he has to collect the information at his own expense of time and money, even paying the recording fee. The fee is twenty-five cents, which does not amount to much in one case, but, in the event of a hundred cases, it is considerable. That is passed on to the recording officer who has practically no work to do.

Dr. Charles Durnin (Westhope): It is my practice to carry these little slips in a separate pouch in my grip, and when I attend a confinement I report the name of the father and the date, sign my name and then tell the father to fill out the blank and send it to the clerk.

In regard to the death; Our undertakers never think of burying a body without getting a certificate. That is the invariable rule. I think the law is all right so far as that is concerned.

Dr. Smyth (closing the discussion): I am glad to have heard this discussion, gentlemen. It has given me more information than I had when writing the paper. It is not to be wondered at, however, that the people generally do not obey the law when doctors, who are supposed to be particularly interested in vital statistics, do not know more about the state law than has been shown in this discussion.

Dr Stickney is correct in saying that there is no appropriation for enforcing the vital statistics law. This is not altogether the fault of the legislature. When the bill was introduced into the legislature six years ago, it carried an appropriation of $4,000. The bill was introduced late in the session, and Dr. Taylor, of Grand Forks, who was a member of the senate, was very much in favor of the bill and was active in supporting it. The doctor had the University appropriation to look after, and was afraid that this appropriation of $4,000 might interfere with the other appropriations. If any of you are familiar with legislative practice, you know that a member from a town with a state institution who fails to get a large appropriation for that institution is likely to remain at home in the future.

The appropriation, therefore, was dropped with the understanding that the law would be enforced for two years, the benefit of it would be shown, and an appropriation secured at the next session of the legislature. If the law had been enforced it would have been easy to get a suitable appropriation, and the law could have been enforced for less money than has been wasted on getting incorrect and misleading returns. The trouble was not so much the want of funds as the lack of interest on the part of the state officials.

As some of you may know, I am not speaking for political reasons when I say that the chief executive took no interest in public health matters. At the close of his last term he delivered a message of 10,000 words to the legislature and touched on nearly every phase of state government and its problems, including the necessity of more money for handling glanders in horses, but said nothing about public health work or the necessity for conserving the health and lives of the people, and this, notwithstanding that the death-rate had greatly increased—in some cases doubled—in nearly all the large cities of the state during his administration.

No effort has been made by the state health authorities to obtain an appropriation for vital statistic work, and it will now require a showing of something being done before an appropriation can be secured. If, however, an active health officer would make a good showing by collecting accurate statistics with the appropriation at present available for public health work, I am sure that the legislature would make the necessary appropriation in future.

In public health work money is not the principal asset. An efficient and active health officer will do better work with a small appropriation than an incompetent one with a large appropriation. At least two cities in this state have large health appropriations, one has $2,000 a year, about 30 cents per capita of population; and the other has $6,000 a year, about 50 cents per capita. Both of these cities, in addition, have large appropriations from the state for health work, and yet in the past two years their death-rate has greatly increased. Other cities paying less than ten cents per capita for health work have made better showings.

In regard to what Dr. Golseth says about the popula-

tion of Jamestown being underestimated: That is a matter that nearly every city complains of. The U. S. Census returns must be accepted as the correct population. Any city can make a showing of a low death-rate by claiming a large population. A few years ago Minneapolis, by the arbitrary method of adding 15,000 to its population, excluding the deaths of babies under one week of age—babies dying so young had no business ever to live—and also excluding all violent deaths and those of non-residents, claimed to be the healthiest city in the United States, with a death-rate of only 8.56 per 1,000 population. An expert statistician showed up the fallacy of the figures, and now Minneapolis has a record of a death-rate of 12 per 1,000 and even at that has a lower rate than the larger cities in our own state.

If deaths at the State Hospital for the Insane are being registered in Jamestown, that is the fault of the local registrar, for the asylum is located outside of the city. In my own city, undertakers who had funerals of persons in the country, to save themselves trouble, registered the deaths in the city. This probably happened in other communities, but could not have been done if the state registrar had attended to his duty.

Dr. Pence said that the certificates went to the auditor. That is true of city births and deaths, but not of the country. One of the essentials of the vital statistics law, as approved by the U. S. Bureau of Vital Statistics, is that there shall be a state and local registrar, and that all statistics shall be handled by them and not by county officials.

Dr. Bodenstab spoke of the matter of burial permits. Well, that is one of the principal safeguards in the system. No undertaker is allowed to bury a body without a burial permit issued by the local registrar. In case of crime the body cannot be buried without an investigation.

I cannot quite understand how there should be so much difficulty in ascertaining who the proper township officer is, to whom to report births and deaths. Nearly every citizen knows what township he lives in, and if the necessary details are taken at the time the physician attends at a birth it is an easy matter to send in a correct report. The township clerk is always the local registrar.

Doctors are not responsible for furnishing the death certificate. That is the duty of the undertaker, who obtains all the necessary data and then presents the certificate to the attending physician for his certificate as to the cause of death.

The law is easily observed if physicians will only take the pains to make themselves familiar with it. In the older countries, where they are more particular about keeping records, official copies of birth and death certificates are given to the parties interested. These certificates, especially the births, are as carefully preserved as marriage certificates and can be produced in court as proof of legitimacy or when required to prove the age of the child.

I remember that when I was a county health officer and had charge of the registration of births and deaths before the new law came into effect, I had considerable difficulty in getting returns from outlying parts of the county. I had cards printed, headed "Official Certificate of Birth," and sent one to the parents of each child registered. In a short time more births were being registered than before or since. One day I received a letter from a lady in Michigan in which she said that she had lost the certificate of her little boy's birth and wanted me to send her a copy. On looking up the date and place of birth she gave me I found that the baby had been born before I held the office and that the birth had taken place in an adjoining county. Evidently, she had seen one of the certificates issued by me and wanted an official record of the birth of her own baby.

What I insist most upon in the failure to enforce the vital statistics law of the state, is, that the state officers are to blame. We cannot expect the people to take much interest in a law when the officers, who are under oath to enforce it and are paid for that purpose, refuse to do so.

It is a ridiculous thing that the United States Bureau of Vital Statistics will not accept mortality statistics from the State of North Dakota while it accepts those of Minnesota and Montana. North Dakota adopted the model vital statistics law two years before these states.

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ANESTHESIA BY RECTAL INJECTIONS

Dr. James T. Gwathmey, of New York, in a paper presented before the International Medical Congress in London, and in another paper read before the New York Society of Anesthetists, advocates the administration of ether with olive oil through the rectum. In his first hundred cases the results were extremely encouraging, and although still in the experimental stage the method may become general. The advantages of rectal injection are obvious. The lower portions of the body, trunk, and extremities are more decidedly influenced than the brain, the reflexes remain active, and there is a complete relaxation, which is highly important when abdominal work is under way. Usually, there is a reflex vomiting before the patient regains consciousness, but there is no nausea. There is also less danger from pneumonia than by any insufflation methods. Dr. Gwathmey gives the usual hypodermic of morphine, one-eighth to one-sixth, with atropine, one one-hundredth, a half hour before operation. The bowels are cleared, and five grains of chloretone, two drams of ether, and two drams of olive oil are injected in the bowel.

Following this first injection a seventy-five per cent solution in olive oil, one ounce of this mixture to every twenty pounds in weight of the patient, is given at rapid intervals, allowing one minute for each dose. Narcosis usually occurs within five minutes after the injection. If stertorous breathing or loss of reflexes take place, the solution is drawn off through the tube in the rectum which remains in situ, and cold soapsuds water is substituted.

Occasionally it may be necessary to give a small quantity of ether or chloroform by the usual method to supplement or hasten the rectal anesthetic. If necessary, or for other reasons, a local anesthetic, such as Dr. Crile uses, may complete the anesthesia.

No patient has died under this method, although one case died twenty-four hours after operation, due to a host of diseased organs. Its use in children is a distinct advantage, but the solution should not contain more than from fifty to sixty-five per cent of ether.

Occasionally the absorption of the ether may be delayed, and in one case anesthesia did not follow after forty minutes. This is not exceptional, even when an anesthetic is inhaled, and many people are differently susceptible. Each individual case should be subjected to a careful analysis before any form of anesthesia is exhibited.

If the method proves useful, the anesthetist can give more time to the observation of his patient. One other advantage is that, when an experienced anesthetist is not available, a physician or a trained nurse can safely carry out the procedure.

The country practitioner may find much satisfaction in this old-new way of anesthesia. The addition of olive oil is the new feature, as anesthesia per rectum has been in vogue for years.

RESPONSIBILITIES OF SURGEONS

When one considers the innumerable cases that pass inspection by the surgeons of this and other countries, it is remarkable to note the small number of fatalities due to ignorance and neglect. It is probably true that a large number of patients are rendered uncomfortable and unbenefited by surgical operations performed by unskilled and reckless surgeons, and that a considerable number of cases go to their eternal resting places, the cause for which is never satisfactorily explained. The majority of such deaths, however, are due to disease states beyond repair in which the surgeon hopes to alleviate suffering and prolong life by surgical intervention. It is equally true that there are too many would-be and over-enthusiastic operators who fail to make a primary diagnosis and in whom there is no sound

judgment as to the needs or methods or time for surgery. The profession is crowded with near-surgeons, who ought to practice general medicine for years before they undertake surgical work.

Then, too, there are a class of men who blunder into surgery, and who achieve success by sheer luck and the phenomenal recuperative power of the patient. True, too, there are many operators who fail in technic, who are commonly unsuccessful, and who fall by the wayside and drift about indifferently in medicine.

Many tombstones mark the graves of those who gave up their lives needlessly because some aspirant in surgery made a mistake. It is true also that the operator may have made a correct diagnosis and performed a successful operation, and the patient then dies from neglect of nurses, caretakers or from a willful disregard of advice during convalescence. These failures are not the fault of the surgeon necessarily, yet the blame is frequently laid at his door. He is the one who is actually responsible in the eyes of the people.

It is remarkable that surgical deaths do not call forth indignant comment, but, as a matter of fact, the majority of people calmly resign themselves to the death of relatives, feeling that everything that could have been done was actually done.

The surgeon's responsibilities do not end here: He is responsible for many little or big acts of negligence. The old stories of unremoved sponges, scissors, and other articles, are constantly looming up, and only occasionally does the surgeon suffer the consequences. A suit for malpractice under such circumstances is comparatively rare, but now and then the blow falls, the neglect is discovered, and the truth comes out. The surgeon or his insurance company quietly pays the damages, and the work goes on. The humility of the surgeon is a lesson never forgotten. Some kind Providence protects both surgeon and patient, as is evidenced by the fact that very few cases of malpractice of this sort are headlined in the daily press. Usually, a short item covers the information and a suit is instituted, but it rarely gets beyond this stage. The presumption is that a settlement is made that is satisfying to all concerned. Once in a while a case is tried and a verdict rendered, but the matter is soon forgotten by the flitting-minded public.

Greater care in diagnosis, fuller explanations to friends and relatives of the needs of surgical interference, backed by competent consultants, assisted by trained helpers, watchful surgical nurses, and a system governing the number of sponges and instruments would do away with the malpractice and legal suits that are a constant menace to surgeons.

Perhaps the public are not unmindful of the great and wonderful benefits of surgery, and perhaps they appreciate the responsibility of the surgeon in his honest endeavor to help mankind. The unfortunate surgeon is he who undertakes a proper operation and who succeeds in mitigating suffering, if not in relieving it entirely, and who sends his bill in good faith, but finds that, in order to evade payment, the patient brings a suit for malpractice. The surgeon hesitates to force payment, and not infrequently loses reputation, reward, and fee. If, however, he decides to assert his rights he must subject himself to publicity and expense, together with the criticism of a non-appreciative public. To be on the safe side, be sure you are right, and then back up your assurance by insurance.

NEWS ITEMS

Dr. J. H. Laughlin has located at Parkers Prairie, Minn.

Dr. J. A. Akkinson, of Aberdeen, S. D., has moved to Chicago.

Dr. A. M. Call, of Rugby, N. D., will soon go to Europe for a year's study.

The Northern Pacific Hospital at Brainerd was badly damaged by fire last month.

Dr. J. J. Mertens has moved from Huren, S. D., to Lebanon, in the same state.

Dr. H. L. Lamb, of Sauk Center, Minn., is having a hospital and office building erected.

The new West Side Hospital of St. Paul opened last month. It will accommodate fifty patients.

Dr. Martin B. Ketron, of New York City, has entered into partnership with Dr. Peterman of Parker, S. D.

This year's Nobel prize was awarded to Professor M. Charles Richet, of the University of Paris. It amounts to nearly $40,000.

Dr. Holland T. Ground, of Aberdeen, S. D., has moved to St. Peter, Minn., to take a position as staff physician at the state hospital.

The city of Arvilla, N. D., and the county may unite in building a tuberculosis sanitarium in connection with the county hospital at Arvilla.

Many city hospitals in the Northwest are inocu-

lating their nurses and attendants against possibility of infection through contact with typhoid patients.

Dr. G. L. Rudell, of Plaza, N. D., and Dr. Callerstrom, of Northwood, N. D., have gone to Europe for six months to take post-graduate work at Vienna.

The Rochester Nurses' Association has been formed at Rochester, and the membership of the club is open to all graduate nurses. Miss Josephine Webber is president.

Dr. C. F. Reineke, of New Ulm, has returned from Chicago, where he spent considerable time looking up *x*-ray work, as well as investigating nose, ear and throat trouble.

Dr. Sarah Ethel Smith, who has practiced medicine in Dickinson, N. D., for the past ten years, has moved to Portland, Ore. Dr. Smith built the Dickinson hospital.

Dr. C. J. Bloom, formerly of Mora, Minn., has returned from Europe, where he spent the summer in post-graduate work at Vienna. Dr. Bloom will locate at Muskegon, Mich.

The Minneapolis City Council has passed a stringent ordinance regulating the sale of habit-forming drugs. The penalty for a violation of the ordinance is fine and imprisonment.

The Annals of Surgery gave its entire December number to the subject of anesthesia. More than two dozen eminent writers contributed to the number, covering almost every aspect of the subject.

Dr. W. T. Stone, formerly of Park Rapids, who has been practicing medicine for a short time in Minneapolis, has moved to Stacy, where he will practice his profession and conduct a drug-store.

A meeting of the Northwestern District Medical Society of North Dakota was held in Minot at the office of Dr. A. Carr. Interesting demonstrations with the pulmotor and the lungmotor were given.

Dr. Wm. Knapp, of Hope, Idaho, was fined $50 for practicing medicine in Montana without a license. He went across the state line from Idaho to Trout Creek to attend some cases of typhoid fever.

Dr. R. A. Kelly, of Spencer, S. D., has just returned from Chicago, where he has been specializing in the eye, ear, nose, and throat, and assumed the practice of Dr. Reamer, which he recently purchased.

Dr. Annah Hurd, of Minneapolis, Dr. F. B. Weiser, Windom, and Dr. R. D. Matchan, of Minneapolis, have been reappointed by Governor A. O. Eberhart as members of the State Board of Medical Examiners for three years.

At the meeting of the South Dakota Educational Association, held in Sioux Falls last month, Dr. G. E. LaMar, of Rapid City, read a paper on "Epidemics of Children's Diseases Among School-Children: How to Prevent and Control."

The monthly clinic of the Ramsey County Medical Society was held at St. Joseph's Hospital, St. Paul, last month. A lecture was given by Dr. A. Schwyzer. He introduced one of the patients whom he had treated with the *x*-ray treatment for inoperable cancer of the stomach.

Mr. J. J. Hill has subscribed $10,000 of the $50,000 hospital fund for the proposed new hospital at Minot, N. D., conditional upon the completion of the entire amount. Minot citizens have raised $23,000, and Chairman Palda is confident that the balance of the money will be raised in a few weeks.

A mass meeting was held recently at Hillsboro, N. D., to discuss the matter of erecting a modern hospital there. Dr. A. G. Anderson called the meeting to order and briefly stated the purpose for which it was called. Theo. Kaldor was elected chairman, and Carl Anderson, secretary. The citizens showed a lively interest in the undertaking.

Commissioner Hicken, of Duluth, has introduced an ordinance to regulate the practice of medicine in that city. The ordinance makes it unlawful for anyone to practice medicine in the city without being licensed by the State Board of Medical Examiners and being registered with the clerk of the district court of St. Louis County and the city health department.

The Scott-Carver Society met in Jordan on Dec. 4th. Only routine business was done, and the following were elected to office for 1914: President, Dr. John Landenberger, New Prague; vice-president, Dr. J. B. White, Jordan, secretary-treasurer, Dr. H. W. Reiter, Shakopee; delegate, Dr. H. W. Reiter, Shakopee; alternate, Dr. Fred H. Buck, Shakopee; censor, three years, Dr. H. A. Schneider, Jordan.

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